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DEPARTMENT OF NORTHERN AFFAIRS AND NATIONAL RESOURCES

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# CONTRIBUTIONS TO ANTHROPOLOGY 1957

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## BULLETIN No. 162

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# CONTRIBUTIONS TO ANTHROPOLOGY 1957

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# THE CALLISON SITE IN THE LIGHT OF ARCHÆOLOGICAL SURVEY OF SOUTHWEST YUKON

By Richard S. MacNeish

During the summer of 1957 the author, accompanied by two assistants, Reginald Hamel and Mark Molot, undertook an archæological survey of southwest Yukon and the more easterly sections of the Alcan Highway in British Columbia. The greater part of the time of the reconnaissance was spent in a quadrangle bounded by Johnson's Crossing, Burwash Landing, Dawson City, and Mayo (*see* Map 2).

The basic purpose of a further survey in the area, previously inspected by Frederick Johnson (Johnson, 1946, pp. 183-187) and Douglas Leechman, was to identify as many sites as possible so that the best might be selected for excavation in a number of future field seasons. Besides finding the range of sites in the area and establishing a chronology, the author was particularly interested in problems concerning micro-blade sites of the interior Northwest.

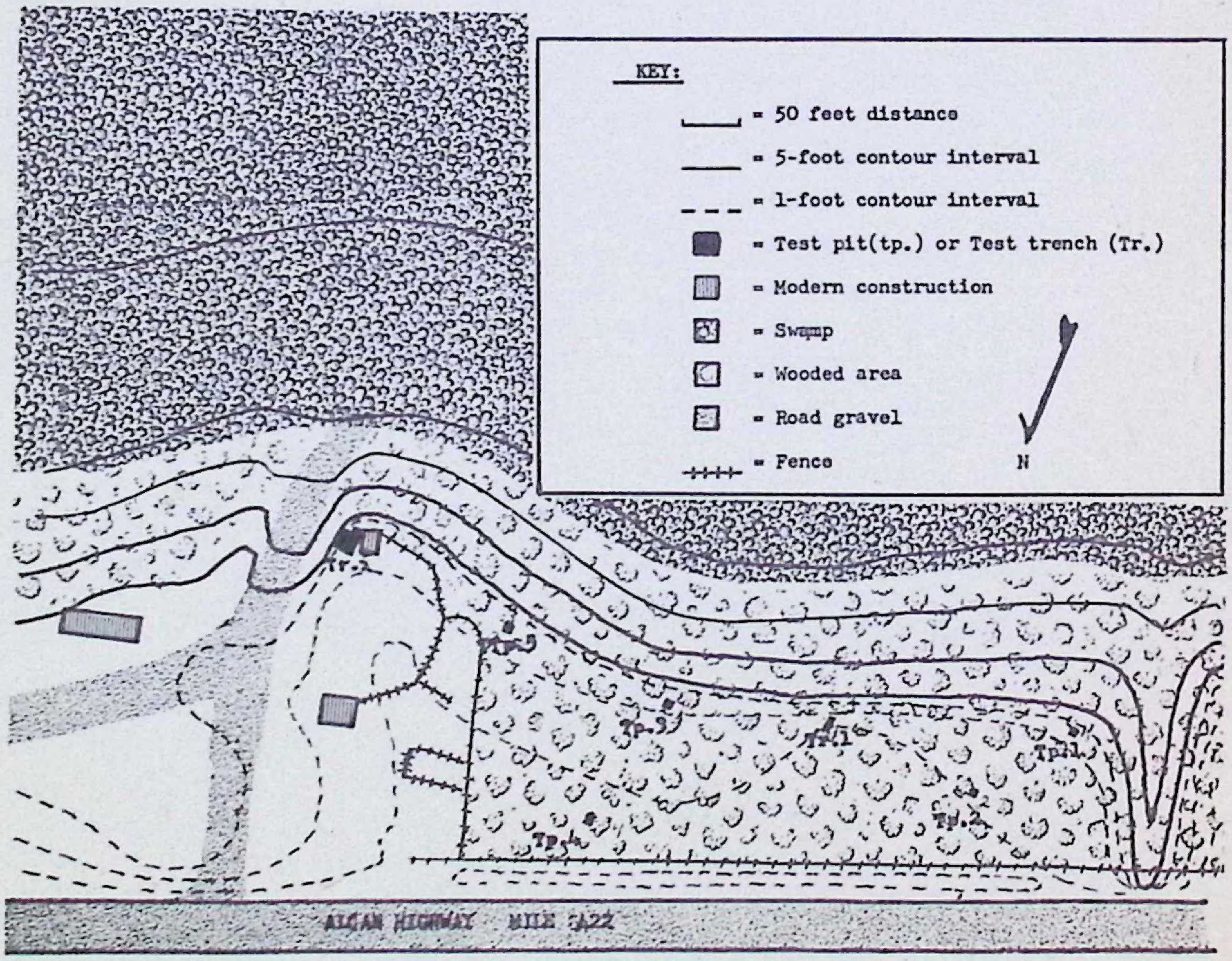
We collected one or more artifacts from 96 stations, tested about a dozen sites, and excavated one fairly intensively. The excavated site, called Callison, will be fully described in this report. The chronological position and cultural relationships of this site in British Columbia may be best understood by a comparison with the sites surveyed in southwest Yukon. These sites have been grouped into tentative cultural complexes on the basis of comparisons, and arranged in tentative chronological order on the basis of geology and seriation. The artifacts from Callison will be described along with those from the other sites. The comparisons of these complexes with those from adjacent areas help us to re-define the problems concerning the northwestern interior micro-blade assemblages. and allow us to tentatively date the Callison site.

## THE CALLISON SITE

The site, No. IeSh-1 (Borden, 1952a. pp. 44-48), is located on and under the farm, restaurant, and lodge of E. Callison, south of the Alcan Highway, at Mile 422 in central northernmost British Columbia. It is just west of the top of the pass between Racing and Toad rivers in the centre of a triangular basin surrounded by jagged mountains. In the southern portion of this basin are the remains of a small pothole-like basin, which is drained by a creek flowing north from the northeast portion of this almost extinct lake. The basin of the former lake is surrounded by a steep bank about 15 feet high (*see* map 1).

Surface collections made on June 20 to 24, 1957, revealed chips and artifacts spread over the top of the bank from the drainage creek westward for a distance of about 2,000 feet. They did not seem to extend back from the bank of the lake for more than 200 feet, though construction along the Alcan Highway had somewhat disturbed the northern part of the site. After considerable examination of various cross-sections along the bank and of the various modern excavations, it was decided that the area along the bank from the edge of the barns and corral to a drainage ditch about 700 feet to the west had the greatest concentration of artifacts.

Seven test pits were sunk in this area during June and in early September. Five of these were close to the bank, and two were some distance back from it. All were oriented along the cardinal co-ordinates and were connected by a grid system. For convenience, these tests will be referred to as Pits 1 to 5 and Trenches 1 and 2 (*see* Map 1). The two farthest from the bank, Test pits 2 and 4, revealed a few chips and a 7-inch layer of reddish soil underneath the humus, but they contained no artifacts. Along the bank, Test pit 1, farthest west, had about a dozen chips and one flat-topped, snub-nosed end scraper in it. All were in the reddish soil about two inches below the bottom of the humus. Test pit 3 revealed many more chips in the reddish brown soil as well as two pieces of burned bone. The bone was about one foot southwest of the northeast corner of the square and was associated with a chopper, which was 2 inches above a side scraper. Test pit 5 also contained chips and artifacts in the



Map 1. Locations of excavations at the Callison site.

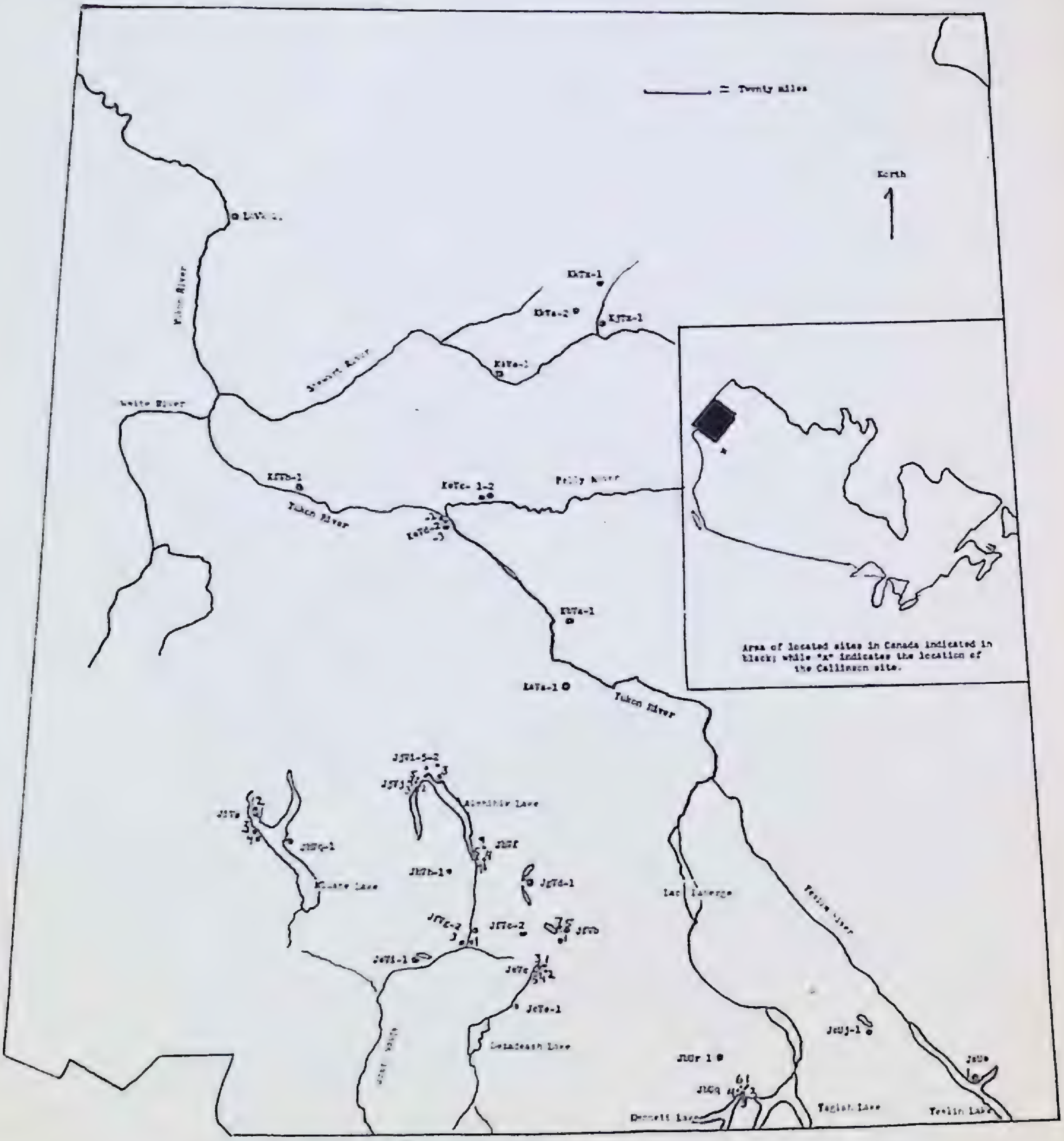
red soil immediately below the humus. Eight of the ten prismatic or truncated blades appeared in the southeast quarter of the square, while one was in the centre, and one 4 inches east of the centre.

Trench 1 was 5 feet wide and about 12 feet long. About 6 feet from its south end was found an area about 2 feet in diameter which contained four fire-cracked boulders, a large quantity of small fragments of burned bone (fish, bird, and deer), as well as artifacts and chips. Chips were profuse, and seven side scrapers and two end scrapers came from the area of burned bone, while three side scrapers were just north of it. Two blades, two bifaces, and two point fragments were just south of the burned area. Though the chips, bones, and artifacts showed a considerable range of depth, some occurring just below the humus and others 6 inches below it in the red soil, the greatest concentration of bone and artifacts, as well as a lens of ash, occurred 2 to 3 inches below the bottom of the humus. These materials probably represent a floor level of the ancient inhabitants of the site.

Trench 2 was the larger and was farther to the east. The trench consisted of four connected 5-foot squares parallel to three more. It was excavated between a small shack and the edge of a roadway leading from the barracks to the basin of the extinct lake. Chips were abundant in all squares, and their depth ranged from 1 to 6 inches below the humus in the red soil. As in Trench 1, there was a definite concentration of them about 2 inches below the humus. In the southwest portion of the trench a single conical pit occurred. It was about 16 inches in diameter at its mouth and extended down from the red soil into the yellowish loam for a depth of about 9 inches. In it were five thin side scrapers retouched on one edge, two large single-edge scrapers, and parts of four bifacial choppers and knife blades. Besides these artifacts, 72 more were found scattered throughout the trench.

The archæological provenience of the artifacts of Trench 2, and probably Trench 1, indicates that we are dealing with cultural remains that are roughly contemporaneous. The hundred or so artifacts from these trenches, as well as from the other test pits, compose a distinct archæological complex consisting of the following types: thin and thick flake side scrapers retouched along one or both dorsal edges; flake spoke-shaves; triangular, oblong and end-of-the-blade end scrapers; small round and large irregular plano-convex end scrapers, micro blades and blades unnotched, and side-notched concave-based projectile points; ovoid and square-based bifacial knives, choppers, and discs. A comparison of the complex of artifacts with the 200 from the surface collections by both Johnson's party and mine reveals only one additional artifact type (a tongue-shaped core). For this reason I believe it is safe to conclude that all artifacts from the site belong to a single artifact complex and are probably roughly contemporaneous.

The occurrence of the artifacts only in the red soil above the bank, as well as the presence of burned fish bones, seems to indicate that these people occupied the site when the basin was filled with water. The question now becomes: when was this? The geology of the site suggests an answer to this query. Examination of the walls of the trenches, test pits, and



Map 2. Location of classifiable sites in the southwest Yukon.

cross-sections cut by erosion and modern human activity reveals the following stratigraphy of the site. The whole site is covered by from 2 to 7 inches of dark forest humus. Under the humus is a reddish loam from 4 inches to a foot thick, which seems to represent a mature soil profile. This, in turn, overlies the yellowish loess from one to 4 feet thick, which, in turn, covers gravels (perhaps glacial). Raup's studies from along the Alcan Highway would suggest that the loess was deposited after the last glaciation, some 5,000 to 9,000 years ago, and that it matured to its red colour during the post-glacial optimum, 4,000 to 7,000 years ago, while the humus was formed during the last 1,000 to 2,000 years. Thus the reddish-brown soil and the artifact complex with it would seem to fall in the period between 2,000 to 7,000 years ago.

However, the most reliable data concerning both the chronological position and the relationships of the cultural complexes found at the Callison site can be derived from comparisons with the sequences of adjacent areas. The best comparisons can be made with the southwest Yukon. However, before we describe the cultural complexes in these areas, it is necessary to describe what artifact types occur there as well as at Callison.

## ARTIFACT DESCRIPTIONS

These classifications are based upon comparisons of 1,182 artifacts from 96 sites in southwest Yukon and surrounding areas in the Northwest. The main purpose of these classifications is to establish time-markers based upon modes of various artifact features, which will assist in establishing chronology. Because of the small samples and limited excavations, the types are, at best, tentative (trial types) and are subject to change and modification when larger samples are available.

### PROJECTILE POINTS (*See* Table 1)

This classification is based upon a sample of 109 complete or fragmentary projectile points. Seventy-one of these were classifiable; 54 came from the National Museum of Canada collections, and 17 from the Peabody Museum of Andover collections, which were from sites we also visited. (In Table 1 the latter are in parenthesis.)

**Plainview-like points (Plate I, fig. 19, 20).**

*Sample*: 3

Form and chipping technique: These are basal fragments of points with roughly parallel, slightly convex lateral edges and concave bases. Irregular collateral pressure flaking appears on their surfaces with finer retouching along their edges. Basal edges and basal portions of the lateral edges have been ground.

Dimensions: Estimated maximum length, 70 mm.
Maximum thickness, 8 and 10 mm.
Basal width, 19 mm.

TABLE 1.—TENTATIVE PROJECTILE POINT TYPES

| SITES | TOTALS | Unclassifiable point fragments | Plainview-like | Agate-like | Milnesand-like | Small Lanceolate | Lenticular | Contracting Stem | Side-notched Convex Base | Side-notched Concave Base | Large Corner-notched | Small Corner-notched | Small Side-notched | CULTURE COMPLEXES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JbUq-5 | 1 | | | | | | | | | | | | 1 | Bennett |
| JbUq-1 | 2 | | | | | | | | | | | 1 | 1 | |
| JhVf-4 | 1 | | | | | | | | | | | 1 | | |
| JbUq-2 | 2 | | | | | | | | | | 1 | 1 | | |
| JhVf-9 | 2 | | 1 | | | | | | | | | 1 | | |
| JiVs-3 | 2 | 1 | | | | | | | | | 1 | | | Aishihik |
| KeVd-2 | 1 | | | | | | | | | | 1 | | | |
| JhVf-5 | 1 | | | | | | | | | | 1 | | | |
| JfVg-1 | 3 | 2 | | | | | | | | | 1 | | | |
| JjVi-3 | 2 | | | | | | | | | 1 | 1 | | | |
| JaUe-1 | 2 | | | | | 1 | | | | 1 | | | | |
| JbUr-1 | 1 | | | | | | | | 1 | | | | | |
| JeVe-1 | 1 | 1 | | | | | | | | | | | | Taye Lake |
| JfVb-5 | 1 | | | | | | | | 1 | | | | | |
| HjRr-1 | 1 | 1 | | | | | | | | | | | | |
| JfVb-7 | 1 | | | | | | | | 1 | | | | | |
| JeVe-2 | 7 | 3 | | | | 1 | | | 2 | 1 | | | | |
| IeSh-1 | 11(1) | 8(1) | | | | 1 | | | 1 | 1? | | | | |
| JeVe-4 | 2 | | | | | | | 2 | | | | | | Gladstone |
| JjVj-5 | 1 | | | | | | | | 1 | | | | | |
| JjVi-5 | 1 | | | | | | | | 1 | | | | | |
| JfVg-3 | 4(3) | 1(1) | | 1 | 1(1) | | | | | 1(1) | | | | |
| JhVq-1 | 6(5) | 1(1) | | 1(1) | | | | 1(1) | 2(1) | 1(1) | | | | |
| LaVk-2 | 2 | 2 | | | | | | | | | | | | |

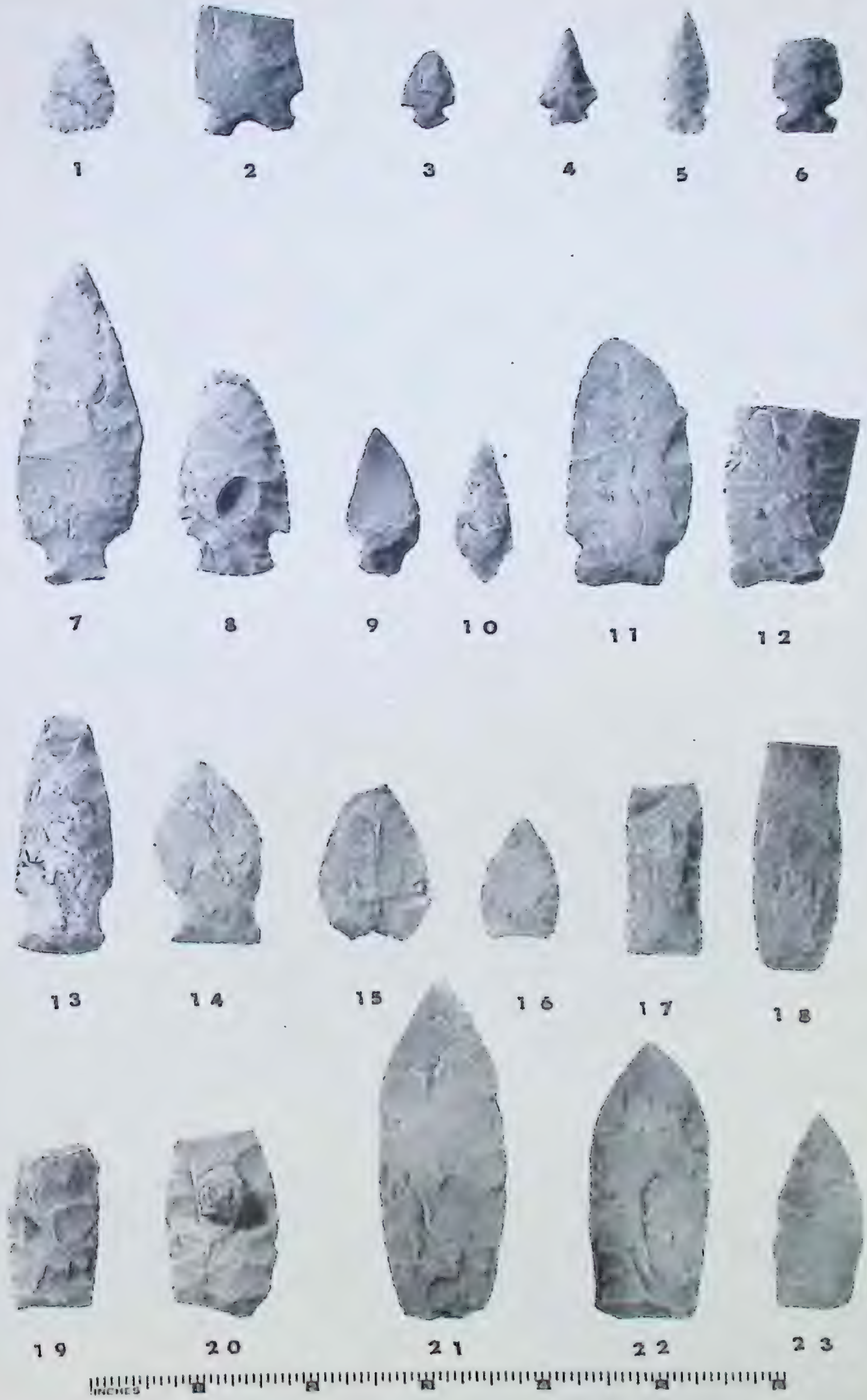
| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JeVc-5 | 4(3) | 1 | | 2(2) | 1(1) | | | | | | | | | Little Arm |
| JeVc-1 | 5(3) | 4(2) | | | 1(1) | | | | | | | | | |
| KkVa-2 | 4 | 2 | | | 1 | 1 | | | | | | | | |
| JiVs-1 | 2 | | | 1 | | 1 | | | | | | | | |
| JiVs-2 | 3(2) | 1(1) | | 1 | 1(1) | | | | | | | | | |
| JeVi-1 | 5(5) | 3(3) | | | 1(1) | | 1(1) | | | | | | | |
| JjVj-2 | 1 | | 1 | 1 | | | | | | | | | | |
| JjVi-2 | 1 | 1 | | | | | | | | | | | | |
| JfVg-2 | 1 | | | | 1 | | | | | | | | | Champagne |
| JiVs-4 | 1 | | | | 1 | | | | | | | | | |
| JgVd-1 | 1 | | | | 1 | | | | | | | | | |
| JbUq-6 | 1 | | | | 1 | | | | | | | | | |
| JeVc-3 | 6 | 2 | | 2 | 2 | | | | | | | | | |
| JfVc-2 | 2 | | | 1 | | 1 | | | | | | | | |
| JhVf-6 | 1 | | | 1 | | | | | | | | | | |
| KfVe-1 | 1 | | | 1 | | | | | | | | | | |
| JjVj-4 | 1 | | | 1 | | | | | | | | | | |
| JbUq-4 | 1 | | | 1 | | | | | | | | | | |
| KjTx-1 | 1 | | 1 | | | | | | | | | | | |
| JgVp-1 | 5(5) | 1(1) | | 3(3) | 1(1) | | | | | | | | | |
| JfVb-2 | 1 | 1 | | | | | | | | | | | | |
| JdUp-1 | 1 | 1 | | | | | | | | | | | | |
| JjVj-6 | 1 | 1 | | | | | | | | | | | | |
| TOTALS | 108(27) | 38(10) | 3 | 17(6) | 13(6) | 6 | 1(1) | 3(1) | 10(1) | 6(2) | 6 | 4 | 2 | |

### Plate I

(Neg. No. J5002)
($\frac{1}{2}$ natural size)

| | |
|---|---|
| Fig. 1 | Tear-drop-shaped point (JhVf-6). |
| Fig. 2. | Large concave-based side-notched point (JjVi-3). |
| Fig. 3, 4. | Small corner-notched points (JhVf-4 and 9). |
| Fig. 5, 6. | Small corner-notched point (JbUq-5 and 1). |
| Fig. 7, 8. | Large corner-notched point (JhVf-5 and KeVd-2). |
| Fig. 9, 10. | Contracting-stem point (JeVc-4). |
| Fig. 11, 12. | Large concave-based side-notched point (JeVc-2 and 1). |
| Fig. 13, 14. | Large convex-based side-notched point (JfVb-5–7). |
| Fig. 15, 16. | Small lanceolate point (JeVc-2 and J,Vs-1). |
| Fig. 17, 18. | Agate basin-like (KfVe-1 and JjVj-4). |
| Fig. 19, 20. | Plainview-like (JhVf-9 and KjTx-1). |
| Fig. 21-23. | Milnesand-like (J,Vs-1, JbUq-6, and JfVg-2). |

Plate I



Geographical and temporal relationships: In southwest Yukon one of these points came from the Aishihik complex while the other two came from Champagne complex sites. Similar points have been found in the Franklin Tanks site on the east end of Great Bear Lake (MacNeish, 1956a, p. 60), and at least one has been found on the Firth River in northern Yukon (MacNeish, 1956b, p. 96), and one occurred in a collection from Alaska (Rainey, 1940). As Krieger has shown (Krieger, 1947; Suhm and Krieger, 1954, p. 472), these points, or ones similar to them, are distributed from Alaska to northern Mexico.

### Milnesand-like points (Plate I, fig. 21 to 23)

*Sample*: 13

Form and chipping technique: These are roughly lanceolate in outline with parallel convex lateral edges and a straight to slightly convex base. The chipping on the surfaces varies somewhat with most of them having parallel pressure ripple flaking, either horizontally or slightly oblique, on their surfaces. Three have very slight collateral flaking. Five have a few flakes removed, thinning their basal portion. All edges have small amounts of fine pressure flaking, and most basal portions of the lateral edges have grinding on them. Seven also have grinding on their basal edges. In two cases the grinding is so pronounced along the lateral edges that they have the general appearance of having a wide straight stem like Scottsbluff points, but I believe these to be variants of this same type.

Dimensions: Length, 41 to 82 mm. Average, 62 mm.
Maximum width, usually near the midpoint, 21 to 28 mm. Average, 23 mm.
Maximum thickness, 4 to 7 mm. Average, 6 mm.

Geographical and temporal relationships: These points occur in both the Champagne and Little Arm complexes, and one occurs on the surface of a Gladstone complex site. Similar points occur in Alaska (Skarland and Giddings, 1948, Plate XV–B, c and d, p. 119) and have been found with the Great Bear River complex on the east end of Great Bear Lake (MacNeish, 1956a, Plate VI, No. 2). Wormington has indicated that they are very common from Alberta to as far south as the Valley of Mexico (Wormington, 1957, pp. 111-112).

### Agate basin-like points (Plate I, fig. 17, 18)

*Sample*: 17

Form and chipping technique: These are long, narrow, and lanceolate in outline with slightly convex lateral edges. Three have slightly convex bases; the rest are almost straight. The flaking on their surfaces is usually by pressure and is roughly collateral, though two have oblique ripple flaking. Edges have been pressure flaked, and though the bases of all have been slightly thinned, only three have noticeable flake scars for the basal thinning. The lateral edges above the base are always well ground, and about half the specimens have the ground bases.

Dimensions: Length, 72 to 134 mm. Average, about 80 mm.
Width, 15 to 28 mm. Average 19 mm.
Thickness, 4 to 18 mm. Average, 8.4 mm.

Geographical and temporal relationships: These appear in the Champagne and Little Arm complexes in southwestern Yukon, though two also occur at two Gladstone complex sites. In the north, similar points occurred at the Great Bear River complex at the east end of Great Bear Lake (MacNeish, 1956a), and in the Artillery Lake complex in the barren lands east of Great Slave Lake (MacNeish, 1951, Plate VII). One also was found at Sandy Lake near Fort Liard (MacNeish, 1954, Fig. 68, C-2 and 3). These are almost duplicates of a common point type in Alberta, which is related to Agate Basin types that appear over much of the western United States (Wormington, 1957, p. 141).

### Small lanceolate points (Plate I, fig. 15, 16)

*Sample*: 6

Form and chipping technique: All are short, wide lanceolate points with convex edges. The maximum width is slightly below the midpoint. All have concave bases. There is a tendency in three of them to have one basal corner slightly longer than the other, and this gives them a slightly asymmetrical appearance. The surfaces bear pressure flaking, and the edges are retouched. As they are often made from relatively flat flakes, there are few scars on their surfaces. The bases have been slightly thinned during the process of making them concave.

Dimensions: Length, 23 to 32 mm. Average, 28 mm.
Width, 15 to 25 mm. Average, 19 mm.
Thickness, 3 to 8 mm. Average, 5 mm.

Geographical and temporal relationships: These seem to have a long and spotty distribution in southwest Yukon, and they lasted from the Champagne to Aishihik complex times. They are somewhat similar to ones that appear with Cape Denbigh (Giddings, 1951) and with the Cape Denbigh-like complex on the Firth River in northern Yukon (MacNeish, 1956b).

### Lenticular point

*Sample*: 1

Form and chipping technique: This is lenticular in outline, being pointed at both ends, and is relatively thick. It was made from a rather thick flake that bears retouching along all its edges; part of one basal portion is very slightly ground.

Dimensions: Length, 72 mm.
Width, 13 mm.
Thickness, 7 mm.

Geographical and temporal relationships: Unknown.

**Contracting stem points (Plate I, fig. 9, 10)**

*Sample*: 3

Form and chipping technique: All specimens have a roughly triangular body about three times as long as the contracting stem, but body edges are convex, and the shoulder, which blends into a contracting stem with a slightly flattened base, is ill-defined. The edges have fine pressure retouching on them, and the surfaces are relatively poorly done with percussion flaking.

Dimensions: Length, 35 to 45 mm. Average, 38 mm.
Width, 13 to 19 mm. Average, 16 mm.
Thickness, 5 mm.

Geographical and temporal relationships: In southwest Yukon all these appear in the Gladstone complex. Similar ones occur at the Pointed Mountain site at Fort Liard (MacNeish, 1954, p. 246) and at the Campus (Rainey, 1939) and Tyone River (Irving, 1957, p. 43) sites in central Alaska.

**Side-notched convex-based points (Plate I, fig. 13, 14)**

*Sample*: 10

Form and chipping technique: These are relatively long, narrow points with straight to convex edges and a straight to convex base. They have side notches just above the base. Most of these side notches are fairly deep and relatively wide, but a few are shallow and very wide; thus giving the points an almost lozenge shape. A few of the latter have some grinding on them. Edges are retouched by pressure flaking, and surfaces have rough percussion flaking.

Dimensions: Length, 46 mm (one complete specimen, the others may have been larger).
Maximum width, 19 to 25 mm. Average, 22 mm.
Maximum thickness, 5 to 8 mm. Average, 7 mm.

Geographical and temporal relationships: These begin in the Gladstone complex and are common in Taye Lake; one was found in an Aishihik complex site. In the north they have widespread relationships; they are present in the Lockhart River complex (MacNeish, 1951, Plate III), in the N.T. Docks complex at the east end of Great Bear Lake (MacNeish, 1956a, Plate V, fig. 1), at Pointed Mountain near Fort Liard (MacNeish, 1954, p. 246), and with the Campus (Rainey, 1939) and Tyone River (Irving, 1957, p. 43) sites in central Alaska. In almost all cases these points are associated with micro-blades or prismatic blades and seem to have occurred during the last part of that tradition.

### Side-notched concave-based points (Plate I, fig. 11, 12)

*Sample*: 6

Form and chipping technique: These are all relatively long and wide with concave bases and small side notches just above the base. The chipping on the surfaces is by pressure flaking and is roughly collateral, while the edges, and particularly the base, have finer pressure retouching. The side notches are relatively narrow and not very deep. One point has evidence of lateral grinding near the side notches. There is only one complete point.

Dimensions: Length, 39 to 63 mm. Average, 51 mm.
Width, 26 mm to 30 mm. Average, 28 mm.
Thickness, about 8 mm.

Geographical and temporal relationships: These occur in sites of the Gladstone, Taye Lake, and Aishihik complexes. They also occur in the Lockhart River (MacNeish, 1951) complex and the Fishermans Lake Complex (MacNeish, 1954), in the Northwest Territories, and two very similar ones were found at the Tyone River site (Irving, 1957) in central Alaska. These appear to begin in the late microblade sites in the Northwest and to last after this tradition has died out.

### Large corner-notched points (Plate I, fig. 7, 8)

*Sample*: 6

Form and chipping technique: These are corner-notched with straight to slightly convex bases and are relatively long in proportion to their width. Their surfaces bear rough collateral flaking, and their edges have been pressure retouched. Their corners have been diagonally notched, and about half the specimens have a fairly sharply-defined corner tang.

Dimensions: Length, 50 to 76 mm. Average, 61 mm.
Width, 25 to 32 mm. Average, 27 mm.
Thickness, 6 to 9 mm. Average, 7 mm.

Geographical and temporal relationships: These are most common in the Aishihik complex in southwest Yukon. A few also occur in the Lockhart River complex of the Northwest Territories (MacNeish, 1951), and one was found in the Natalkuz Lake complex from Tweedsmuir Park in north-central British Columbia (Borden, 1952b, Plate II, No. 15). Elsewhere in the Northwest they occur in surface collections but without definite cultural complex associations.

### Small corner-notched points (Plate I, fig. 3, 4)

*Sample*: 4

Form and chipping technique: These are small and wide in proportion to their length with either concave or convex bases and diagonal notching at their corners. Most of them are made from thin flakes and have been roughed into shape, mainly by pressure reflaking along their edges. There is usually no noticeable corner tang.

Dimensions: Length, 18 to 23 mm. Average, 19 mm.
Width, 12 to 17 mm. Average, 13 mm.
Thickness, 3 to 5 mm. Average, 4 mm.

Geographical and temporal relationships: These occur only in the Bennett Lake complex in the southwest Yukon, but they are widespread in the late historic and prehistoric villages in the entire northwestern interior.

**Small side-notched points (Plate I, fig. 5, 6)**

*Sample*: 2

Form and chipping technique: These are small isosceles triangles with deep, narrow side notches just above their straight to slightly convex base. Most of them have fine pressure flaking collaterally on both their surfaces.

Dimensions: Length, 30 mm.
Width, 10 and 15 mm.
Thickness, 3 and 4 mm.

Geographical and temporal relationships: These occur in the Bennett Lake complex in southwest Yukon but are found over much of the United States in late prehistoric and historic sites.

### POLYHEDRAL CORES, BLADES, AND MICRO-BLADES

(*See* Table 2, Plate II)

Found on excavations were 300 blades and micro blades and 14 polyhedral cores. It is obvious that the cores are quite different from one another and reflect temporal changes. From any single core there is, of course, a possible range of blades or micro blades that can be struck from it. However, since some of the cores' polyhedral surfaces are almost flat or very slightly convex in cross-section and other cores are tongue-shaped with a polyhedral surface that is almost pointed in cross-section, it is apparent that the kind of blade or micro-blade struck from each kind will differ in thickness and width and in the parallelness of its dorsal ridges. After considerable experimenting, we have tentatively analysed these micro blades or blades into types that we believe reflect, to some degree, the temporal differences in cores. Eventually, we hope that enough comparisons of sites with adequate core samples associated with a large number of micro blades will be made so that this classification of blades and micro blades can be better defined.

**Truncated blades (Plate II, fig. 13)**

*Sample*: 40

Form and chipping technique: These are basically long rectangles or ovoids. They are flat with two or more irregular ridges on their convex dorsal surfaces. The ventral surface is flat, except for a convex bulb of percussion at one end. Though such types of blades could be occasionally struck from tongue-shaped polyhedral cores, most of the blades would not be of this type. However, tabular and conical cores with a low degree of fluted surface convexity would usually yield this type of blade. A few of these blades represent variants within the type. Seven have two of their lateral edges dorsally retouched, and ten have one edge dorsally retouched. Perhaps when more comparative data are available, these may justifiably become types.

Dimensions: Length, 31 to 53 mm. Average, 42 mm.
Width, 11 to 29 mm. Average, 21 mm.
Thickness, 4 to 11 mm. Average, 8 mm.

Geographical and temporal relationships: As far as southwestern Yukon is concerned, this type occurs mainly in the Gladstone and Taye Lake complexes with the majority occurring at the latter. This type has a wide range over much of North America.

**Thin prismatic blades (Plate II, fig. 14)**

*Sample*: 73

Form and chipping technique: These are low flat prisms, ovoid to rectangular in outline with a single irregular dorsal ridge; sides are roughly parallel, and the ventral surfaces are almost flat except for the bulb of percussion. These were probably struck from tabular or conical cores, and their process of manufacture was probably similar to the previously-described type. Variants within this type reveal that two have been made pointed by dorsally chipping their lateral edges on the end opposite the end of percussion. Eight have one lateral edge dorsally retouched, and one has two lateral edges dorsally retouched.

Dimensions: Length, 4 to 60 mm. Average, 29 mm.
Width, 6 to 23 mm. Average, 12 mm.
Thickness, 1 to 7 mm. Average, 3 mm.

Geographical and temporal relationships: Though a few of these do occur in the Little Arm complex, they are a rarity. They noticeably increase during Gladstone times and reach dominance in the Taye Lake horizon. The type is widespread over North America.

## TABLE 2.—TENTATIVE MICRO BLADE AND BLADE TYPES

| No. | SITES | TOTALS | Truncated Micro Blade | | | Prismatic Micro Blade | | | | Crude Micro Blade | Thick Prismatic Blade | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rounded end | 1 edge retouched | Not retouched | Rounded end | Dorsal retouch | Pointed end | Not retouched | Not retouched | 1 edge retouched | 2 edges retouched | Not retouched |
| 1 | JcVe-1 | | | | | | | | | | | | |
| 2 | KbVa-1 | 1 | | | | | | | | | | | |
| 3 | JfVb-5 | 1 | | | | | | | | | | | |
| 4 | JfVb-1 | 2 | | | | | | | | | | | |
| 5 | HjRr-1 | 1 | | | | | | | | | | | |
| 6 | JfVb-7 | 3 | | | | | | | | | | | |
| 7 | KiVc-1 | 2 | | | | | | | | | | | |
| 8 | KfVh-1 | 2 | | | | | | | | | | | 1 |
| 9 | JeVc-2 | 10 | | | | | | | | | | | 2 |
| 10 | JcUj-1 | 4 | | | | | | | | 1 | | | |
| 11 | IeSh-1 | 68(2) | | | | | | | | | 1 | | 14 |
| 12 | JeVc-4 | 12 | | | | | | | | | | 1 | |
| 13 | JjVj-5 | 2 | | | | | | | | 1 | | | |
| 14 | JjVi-5 | 1 | | | 1 | | | | | | | | |
| 15 | KkTx-1 | 3 | | | | | | | | 2 | | 1 | |
| 16 | JhVf-1 | 1 | | | | | | | | 1 | | | |
| 17 | JjVj-3 | 5 | | 1 | 1 | | | | | 1 | | | 1 |
| 18 | JfVg-3 | 15(9) | | | 2(1) | | | | 2 | 3(3) | | | 4(3) |
| 19 | JhVq-1 | 21(1) | 2 | | | | | | 1 | 6 | | | 1 |
| 20 | LaVk-2 | 12 | 2 | | 3 | | | | 3 | 1 | | | |
| 21 | JeVc-5 | 3(2) | | | 1 | | | | | 1(1) | | | 1(1) |
| 22 | JeVc-1 | 8 | | | 1 | | | | | 3 | 1 | | 1 |
| 23 | KkVa-2 | 46 | 2 | 3 | 10 | 1 | 2 | 1 | 19 | 4 | | | |
| 24 | JiVs-1 | 51 | 8 | | 17 | | 1 | | 11 | 12 | | | 1 |
| 25 | JiVs-2 | 10(8) | 1 | | 2(2) | | | | 4(3) | 2(2) | | | 1(1) |
| 26 | JeVi-1 | 8(6) | 1 | | 4(3) | | | | 1(1) | 2(2) | | | |
| 27 | KaVa-1 | 5 | | | 2 | | | | 3 | | | | |
| 28 | JjVj-2 | 1 | | | 1 | | | | | | | | |
| 29 | JjVi-2 | 1 | 1 | | | | | | | | | | |
| 30 | JhVh-1 | 1 | 1 | | | | | | | | | | |
| 31 | KeVd-3 | | | | | | | | | | | | |
| | TOTALS | 300(28) | 18 | 4 | 45(6) | 1 | 3 | 1 | 44(4) | 40(8) | 2 | 2 | 27(5) |

TABLE 2.—TENTATIVE MICRO BLADE AND BLADE TYPES—*Conc.*

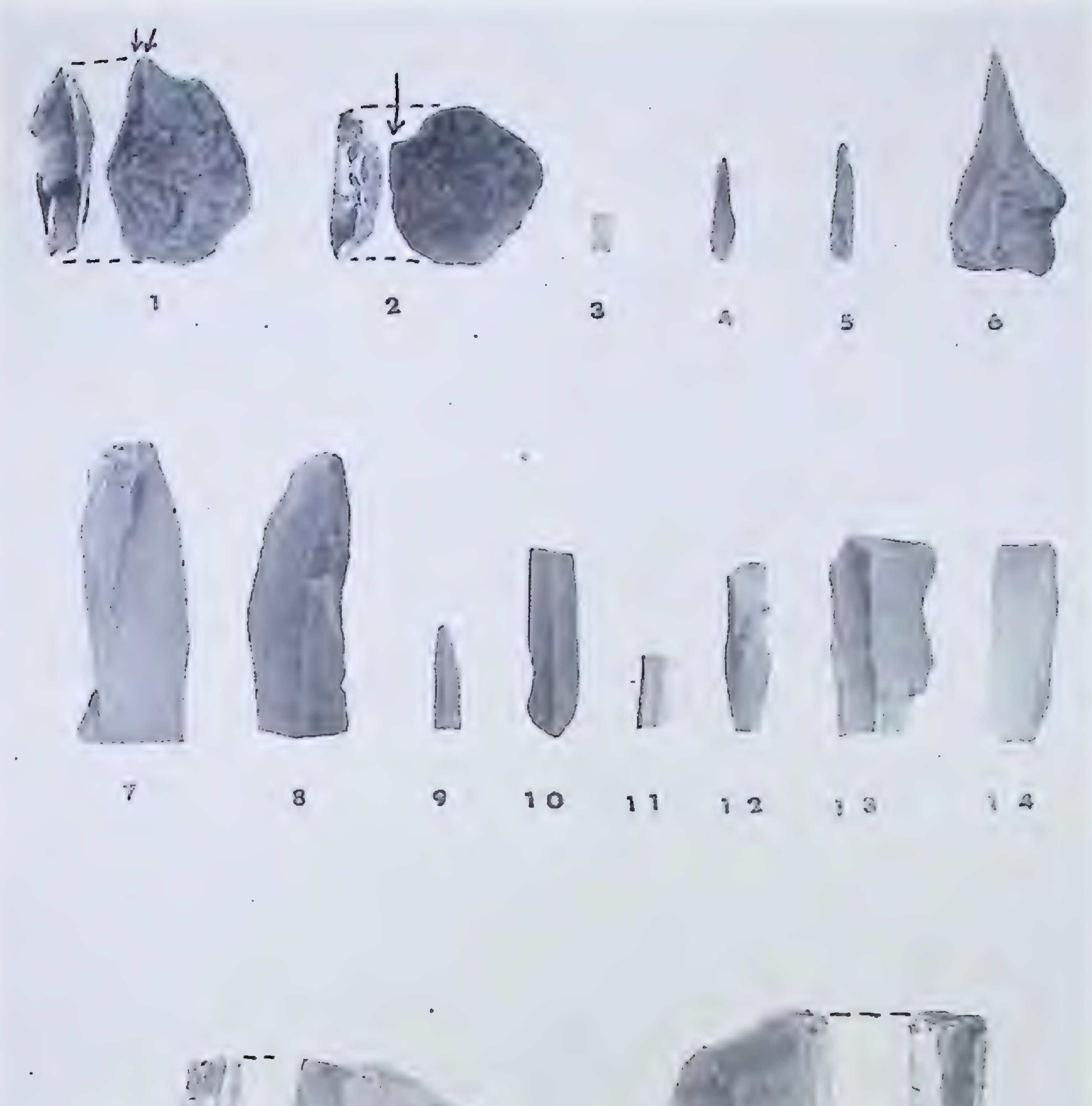
| Thin Prismatic Blade | | | | Truncated Blade | | | POLYHEDRAL CORES | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pointed end | 1 edge retouched | 2 edges retouched | Not retouched | 1 edge retouched | 2 edges retouched | Not retouched | TOTALS | Tongue | Conical | Tabular | CULTURE COMPLEXES | No. |
| ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | 1 | Taye Lake | 1 |
| ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | | 2 |
| ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | | 3 |
| ... | ... | ... | ... | ... | 1 | 1 | ... | ... | ... | ... | | 4 |
| ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | | 5 |
| ... | ... | ... | 2 | 1 | ... | ... | ... | ... | ... | ... | | 6 |
| ... | 1 | ... | 1 | ... | ... | ... | ... | ... | ... | ... | | 7 |
| ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | | 8 |
| ... | ... | ... | 5 | 1 | 2 | ... | ... | ... | ... | ... | | 9 |
| ... | ... | ... | 1 | ... | 1 | 1 | ... | ... | ... | ... | | 10 |
| 1 | 5 | 1 | 24 | 7 | 1 | 14(2) | 2 | 1 | ... | 1 | | 11 |
| ... | ... | ... | 8 | ... | 2 | 1 | ... | ... | ... | ... | Gladstone | 12 |
| ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | | 13 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | 14 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | 15 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | 16 |
| ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | | 17 |
| ... | ... | ... | 3(1) | ... | ... | 1(1) | 2 | ... | 1 | 1 | | 18 |
| 1 | ... | ... | 9(1) | ... | ... | 1 | 3(1) | 1(1) | 1 | 1 | | 19 |
| ... | ... | ... | 1 | 1 | ... | 1 | ... | ... | ... | ... | | 20 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | Little Arm | 21 |
| ... | 1 | ... | ... | ... | ... | 1 | ... | ... | ... | ... | | 22 |
| ... | ... | ... | 4 | ... | ... | ... | 2 | 2 | ... | ... | | 23 |
| ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | | 24 |
| ... | ... | ... | ... | ... | ... | ... | 1(1) | 1(1) | ... | ... | | 25 |
| ... | ... | ... | ... | ... | ... | ... | 2(2) | 2(2) | ... | ... | | 26 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | 27 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | 28 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | 29 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | | 30 |
| ... | ... | ... | ... | ... | ... | ... | 1 | 1 | ... | ... | | 31 |
| 2 | 8 | 1 | 62(2) | 10 | 7 | 23(3) | 14(4) | 8(4) | 2 | 4 | | |

## PLATE II

(½ natural size)

| | |
|---|---|
| Fig. 1, 2. | Burins (KkVa-2). |
| Fig. 3, 4. | Burin spalls (LaVk-2). |
| Fig. 5. | Graver-like retouched pointed micro blade (KkVa-2). |
| Fig. 6. | Drill (KfVd-1). |
| Fig. 7, 8. | Thick prismatic blade (KfVh-1 and JjVj-3). |
| Fig. 9. | Prismatic micro blade (JiVs-1) $\underset{\overline{3}}{}$ |
| Fig. 10, 11. | Truncated micro blade (JiVs-1). |
| Fig. 12. | Crude micro blade (JeVc-1). |
| Fig. 13. | Thin truncated blade (IeSh-1). $\underset{\overline{9}}{}$ |
| Fig. 14. | Thin prismatic blade (IeSh-1). $\underset{\overline{9}}{}$ |
| Fig. 15, 16. | Tongue-shaped polyhedral core (KkVa-2 and IeSh-1). |
| Fig. 17. | Tabular core (JeVe-1). |
| Fig. 18. | Conical core (JfVg-3). |
| Fig. 19. | Conical core (JhVq-1). |
| Fig. 20. | Tabular core (JhVq-1) |

PLATE II



**Thick prismatic blades (Plate II, fig. 7, 8)**

*Sample*: 31

Form and chipping technique: These are much like the previous ones, except that they are very much thicker and the dorsal ridge is straighter and is parallel to the lateral edges. It is difficult to determine the exact type of core they could have come from, other than that the core would have to be large in size. There also are two with one dorsal edge retouched and two with two dorsal edges retouched. Many of the end-of-the-blade scrapers (to be mentioned later) were manufactured from this type of blade.

Dimensions: Length, 27 to 59 mm. Average, 40 mm.
Width, 6 to 18 mm. Average, 11 mm.
Thickness, 3 to 9 mm. Average, 6 mm.

Geographical and temporal relationships: In the southwestern Yukon they occur in the Little Arm, Gladstone, and Taye Lake horizons, being most numerous in the latter. They again have a wide distribution over much of North America.

**Crude micro blades (Plate II, fig. 12)**

*Sample*: 40

Form and chipping technique: These roughly rectangular micro blades have from two to five roughly parallel ridges on their dorsal surfaces. Generally speaking, these ridges are not straight, nor are they totally parallel to the lateral edges. The kind of core that they may have been struck from, their thickness, and their general multiplicity of dorsal ridges would suggest that they were not struck from large tabular or conical cores but from either small cuboid, small conical, or tongue-shaped cores. None of them are retouched.

Dimensions: Length, 9 to 19 mm. Average, 14 mm.
Width, 6 to 11 mm. Average, 8 mm.
Thickness, 1 to 3 mm. Average, 1.5 mm.

Geographical and temporal relationships: These are common in the Gladstone and Little Arm horizons in southwestern Yukon. They also occur at Pointed Mountain (MacNeish, 1954) and in the N.T. Docks complex (MacNeish, 1956a) in the Northwest Territories, and at the Campus site (Rainey, 1939) in interior Alaska. However, they seem to be most common in the Arctic coastal plain and appear to be the dominant type in the New Mountain horizon on the Firth River in northern Yukon (MacNeish, 1956b), in Cape Denbigh (Giddings, 1951) and related sites in Alaska (Irving, 1953), and in Dorset (Collins, 1956) and Denbigh-like complexes in northern Canada and Greenland (Knuth, 1954; Larsen and Meldgaard, 1958).

### Prismatic micro blades (Plate II, fig. 9)

*Sample*: 49

Form and chipping technique: These are small prismatic thick micro-blades, rectangular to lenticular in outline. They usually have a single straight ridge on their dorsal surface, which is parallel to the lateral edges. There is a general tendency for the end opposite the striking platform to be somewhat pointed. Their narrowness and thickness suggest that they have been struck from tongue-shaped cores, so common in the northwestern interior in early horizons, or from the cuboid or conical type core that appears with Denbigh and Denbigh-like sites. A few, of course, could have come from conical, cylindrical, and tabular cores, but they would be a rarity. One of these prismatic micro blades has a rounded retouched end, but another is pointed. Three, peculiarly enough, have rough pressure flaking covering one surface and extending down to the lateral edges. Thus they have the general appearance of side blades, which they are not.

Dimensions: Length, 5 to 25 mm. Average 12 mm.
Width, 3 to 9 mm. Average, 5 mm.
Thickness, 1 to 3 mm. Average, 2 mm.

Geographical and temporal relationships: In southwestern Yukon they are most common in the Little Arm complex, though a few occur with Gladstone materials. They are very common at Pointed Mountain (MacNeish, 1954) and the Campus site (Rainey, 1939) and one was found with the N.T. Docks complex in the east end of Great Bear Lake (MacNeish, 1956a). They also are common at Cape Denbigh (Giddings, 1951) and Cape Denbigh-like sites in the Arctic (MacNeish, 1956b; Irving, 1953).

### Truncated micro blades (Plate II, fig. 10, 11)

*Sample*: 67

Form and chipping technique: These ovoid to rectangular micro blades usually have two straight ridges on their dorsal surfaces that are parallel to their lateral edges. Four specimens have three dorsal parallel ridges. All specimens were probably struck off tongue-shaped or cuboid-type cores. Only rarely could they have been made from the conical or tabular variety. Four have one lateral edge retouched by fine dorsal pressure flaking, and eighteen have retouched rounded ends. Two of these from KkVa-2 have rounded ends, which have been rounded more on one side than the other so they look somewhat like a small bread-knife.

Dimensions: Length, 4 to 35 mm. Average, 14 mm.
Width, 1 to 8 mm. Average, 5 mm.
Thickness, 1 to 3 mm. Average, 1.3 mm.

Geographical and temporal relationships: Almost all of these occur in the Little Arm complex, though ten occur with Gladstone materials.

They also occur with the Pointed Mountain (MacNeish, 1954), N. T. Docks (MacNeish, 1956a), the Campus site (Rainey, 1939), Tyone River site (Irving, 1957), the lower levels of Natalkuz Lake (Borden, 1952b), and on many Denbigh (Giddings, 1951) and Denbigh-like sites in the Arctic.

## POLYHEDRAL CORES (*See* Table 2)

### Tongue-shaped polyhedral cores (Plate II, fig. 15, 16)

*Sample*: 8

Form and chipping technique: All of these are roughly tongue-shaped. The end opposite the tip, called the base of the tongue, is a flat surface which has been the striking platform for the micro blades. The flat wider surfaces usually bear only one or two flake scars on them, while the tip of the tongue has very conscious retouching on it to give it a sharp edge. Seven specimens have polyhedral fluting along one narrow lateral edge from the flat basal striking platform down to the sharpened tip. The other has fluted polyhedral surfaces on both the narrow lateral edges. The polyhedral surface in cross-section of all but one is noticeably convex and almost pointed. The other one, from the Taye Lake horizon, is somewhat different in that the fluted surface on its lateral edge is almost flat in cross-section.

Dimensions: Length, 24 to 42 mm. Average, 31 mm.
Width, 25 to 35 mm. Average, 32 mm.
Maximum thickness, 8 to 16 mm. Average, 11 mm.

Geographical and temporal relationships: These occur mainly in the Little Arm complex but seem to last as a minority core type in both Gladstone and Taye Lake complexes. They are very numerous at the Campus (Nelson, 1937; Rainey, 1939) and Pointed Mountain sites (MacNeish, 1954) in the northwestern interior, and few have been reported from Sarqaq and Denbigh-like sites in the Arctic. They have their maximum concentration in northeastern Siberia and Outer Mongolia (Maringer, 1950).

### Conical polyhedral cores (Plate II, fig. 20)

*Sample*: 2

Form and chipping technique: Both are roughly conical in form and the base of the cone is the striking platform. One has two fluted surfaces, one of which has its striking platform on the base of the cone while the other is on one edge of the cone. The striking platforms are at an acute angle to the polyhedral surface.

Dimensions: Length, 31 and 19 mm.
Width, 44 and 23 mm.
Thickness, 14 and 21 mm.

Geographical and temporal relationships: This is a common type, which occurs over much of North America, and I suspect it occurs in all three of our micro-blade horizons in the North, even though the only two we found were with Gladstone remains.

### Tabular polyhedral cores (Plate II, fig. 17 and 19)

*Sample*: 4

Form and chipping technique: All these were made from flat flakes with one of their wide surfaces having fluting on it. The fluted surface varies from being flat to very slightly convex. One end is the striking platform, which varies from being at an acute to a right angle from the polyhedral surface.

Dimensions: Length, 30 to 51 mm.
Width, 21 to 36 mm.
Thickness, 11 to 17 mm.

Geographical and temporal relationships: These occur in the Gladstone and Taye Lake complexes. Elsewhere in the North I do not know of their distribution.

TABLE 3.—TENTATIVE OTHER CHIPPED STONE TOOL TYPES

| SITES | Expanded Base Drill | Ft. Liard Burin | Burin Spall | CULTURE COMPLEX |
|---|---|---|---|---|
| KfVh-1 | | 1 | | Gladstone<br>Taye Lake |
| LaVk-2 | | | 2 | Gladstone |
| KkVa-2 | | 2 | 2 | Little Arm |
| JiVs-1 | | | 1 | |
| JiVs-2 | | 1(1) | | |
| JeVi-1 | | 1(1) | | |
| KeVd-1 | 1 | | | |
| TOTALS | 1 | 5(2) | 5 | |

## BURINS, BURIN SPALLS, AND DRILL

### Flint drill (Plate II, fig. 6)

*Sample*: 1

Form and chipping technique: This is a long flaring-based drill made from a flat flake. The drill tip is half the length of the body, and the body itself is roughly square. One surface has percussion flaking on it, and the drill tip on the same surface bears pressure flaking. The other surface is without percussion flaking, although it does have some pressure retouching near its tip.

Dimensions: Length, 59 mm.
Width, 32 mm.
Thickness, 3 mm.

Geographical and temporal relationships: Unknown.

**Fort Liard burins (Plate II, fig. 1, 2)**

*Sample*: 5

Form and chipping technique: These are all made from elongated flat flakes, and one surface bears percussion flaking. One of the shorter edges has been retouched on the same side by fine pressure flaking, which I believe was for the purpose of preparing a striking platform. The burin blows have been struck against the striking platform so that spalls were removed from one of the longer lateral edges. The blows are roughly at right angles to the small striking platform. Usually there has been only a single spall removed.

Dimensions: Length, 30 to 80 mm.
Width, 20 to 54 mm.
Thickness, 6 to 12 mm.

Geographical and temporal relationships: In southwest Yukon four of the five occurred in the Little Arm complex, while one was at a Taye Lake site. Elsewhere in the northwest interior, they were found at Pointed Mountain (MacNeish, 1954) and the Campus site (Irving, 1955, pp. 376-383), and there were two burin-like objects from the N.T. Docks complex at Great Bear Lake (MacNeish, 1956a). They also occur on the Firth River in the Flint Creek horizon (MacNeish, 1956b).

**Burin spalls (Plate II, fig. 3, 4)**

*Sample*: 5

Form and chipping technique: These are all flat rectangular flakes with two parallel vertical edges. On one surface at one end there is a bulb of percussion, while the opposite surface is flat or slightly convex.

Dimensions: Length, 9 to 28 mm.
Width, 5 to 7 mm.
Thickness, 1 to 3 mm.

Geographical and temporal relationship: These occur in the southwest Yukon in the Little Arm and Gladstone complexes. Elsewhere in the northwest interior they have not been found, but they are quite numerous with Cape Denbigh or Cape Denbigh-like complexes in the Arctic.

### END SCRAPERS (*See* Table 3, Plate III)

One hundred and twenty-five unifacial end scrapers were uncovered. Although not such good time-markers as the previously described types, they do in a rough way block out the different horizons.

**Flat-flake end scrapers (Plate III, fig. 11, 12)**

*Sample*: 12

Form and chipping technique: These are all large, flat, roughly ovoid, thin flakes that have pressure retouching on one surface along one of their shorter edges.

Dimensions: Length, 36 to 50 mm. Average, 42 mm.
Width, 17 to 40 mm. Average, 34 mm.
Thickness, 4 to 10 mm. Average, 5 mm.

Geographical and temporal relationships: Most of these occur with sites of the Champagne complex, though they also were found at two Little Arm sites. Wider relationships in the Northwest have not been determined.

**Keeled end scrapers (Plate III, fig. 13, 14)**

*Sample*: 14

Form and chipping technique: In outline these range from being oblong to roughly tear-drop. They are all unifacial with one surface flat and the other bearing a definite ridge with pressure flaking extending from the edge to the top of the ridge.

Dimensions: Length, 30 to 44 mm. Average, 38 mm.
Width, 19 to 33 mm. Average, 26 mm.
Thickness, 6 to 17 mm. Average, 12 mm.

Geographical and temporal relationships: In southwest Yukon these usually occur with sites of the Little Arm complex, though two were found at Champagne complex sites. Elsewhere in the Northwest, while they are not common, they do occur at the N. T. Docks complex (MacNeish, 1956a), at Natulkuz Lake (Borden, 1952b), at Pointed Mountain (MacNeish, 1954), and at the Campus site (Rainey, 1939).

**Large plano-convex end scrapers (Plate III, fig. 4, 5, and 10)**

*Sample*: 13

Form and chipping technique: These are roughly oblong to lenticular in outline and plano-convex in cross-section. Their convex surface usually bears percussion flaking, while about three-quarters of their edge on the convex surface bears pressure flaking.

Dimensions: Length, 52 to 74 mm. Average, 65 mm.
Width, 39 to 57 mm. Average, 44 mm.
Thickness, 12 to 18 mm. Average, 15 mm.

Geographical and temporal relationships: These occur at all the complexes with micro blades in southwestern Yukon. A few were found at Pointed Mountain (MacNeish, 1954) and Natulkuz Lake (Borden, 1952b), but, generally speaking, they are rare in the Northwest.

TABLE 4.—TENTATIVE END-SCRAPER TYPES

| SITES | TOTALS | Flat Flake | Keeled | Large Plano-Convex | Flat-topped Snub-nosed | Ovoid | End-of-the-blade | Thumb-nail | CULTURE COMPLEXES |
|---|---|---|---|---|---|---|---|---|---|
| JbUq-1.... | 1 | ...... | ...... | ...... | ...... | ...... | ...... | 1 | Bennett |
| JhVf-1.... | 1 | ...... | ...... | ...... | 1 | ...... | ...... | ...... | |
| JbUq-2.... | 4 | ...... | ...... | ...... | ...... | ...... | ...... | 4 | |
| JiVs-3..... | 3(3) | ...... | ...... | ...... | ...... | 1(1) | ...... | 2(2) | Aishihik |
| KeVd-2.... | 3 | ...... | ...... | ...... | ...... | 1 | ...... | 2 | |
| JaUe-1.... | 3 | ...... | ...... | ...... | ...... | 3 | ...... | ...... | |
| JcVe-1.... | 3 | ...... | ...... | ...... | 3 | ...... | ...... | ...... | Taye Lake |
| JfVb-1.... | 1 | ...... | ...... | 1 | ...... | ...... | ...... | ...... | |
| HjRr-1.... | 2 | ...... | ...... | ...... | 1 | 1 | ...... | ...... | |
| JfVb-7.... | 5 | ...... | ...... | 2 | 1 | 1 | 1 | ...... | |
| JeVe-2.... | 4 | ...... | ...... | ...... | 2 | 1 | 1 | ...... | |
| IeSh-1.... | 19(5) | ...... | ...... | 3(2) | 10(2) | 1 | 5(1) | ...... | |
| JeVe-4.... | 1 | ...... | ...... | ...... | 1 | ...... | ...... | ...... | Gladstone |
| JjVj-5..... | 2 | ...... | ...... | ...... | 2 | ...... | ...... | ...... | |
| KkTx-1.... | 1 | ...... | ...... | ...... | ...... | 1 | ...... | ...... | |
| JfVg-3.... | 3(2) | ...... | ...... | ...... | 1(1) | 1(1) | 1 | ...... | |
| JhVq-1.... | 13(3) | ...... | ...... | 2(1) | 7(1) | 4(1) | ...... | ...... | |
| LaVk-2.... | 3 | ...... | ...... | ...... | 3 | ...... | ...... | ...... | |
| JeVe-5.... | 4(4) | ...... | 1(1) | ...... | 1(1) | 2(2) | ...... | ...... | Little Arm |
| JeVe-1.... | 1(1) | ...... | 1(1) | ...... | ...... | ...... | ...... | ...... | |
| KkVa-2.... | 3 | ...... | ...... | 1 | ...... | 2 | ...... | ...... | |
| JiVs-1..... | 2 | ...... | 2 | ...... | ...... | ...... | ...... | ...... | |
| JiVs-2..... | 4(1) | 2 | 1(1) | 1 | ...... | ...... | ...... | ...... | |
| JeVi-1.... | 3(1) | ...... | ...... | 1 | ...... | 2(1) | ...... | ...... | |
| JjVj-2..... | 2 | ...... | 2 | ...... | ...... | ...... | ...... | ...... | |
| JjVi-2..... | 3 | 1 | 2 | ...... | ...... | ...... | ...... | ...... | |
| JbUq-6.... | 1 | 1 | ...... | ...... | ...... | ...... | ...... | ...... | Champagne |
| JeVe-3.... | 1 | 1 | ...... | ...... | ...... | ...... | ...... | ...... | |
| JhVf-6.... | 1 | ...... | 1 | ...... | ...... | ...... | ...... | ...... | |
| JjVj-4..... | 1 | 1 | ...... | ...... | ...... | ...... | ...... | ...... | |
| JbUq-4.... | 1 | 1 | ...... | ...... | ...... | ...... | ...... | ...... | |
| KjTx-1.... | 3 | 2 | 1 | ...... | ...... | ...... | ...... | ...... | |
| JjVj-1..... | 1 | ...... | ...... | ...... | ...... | ...... | ...... | 1 | |
| JgVd-1.... | 1 | ...... | ...... | ...... | ...... | ...... | ...... | 1 | |
| JfVb-4.... | 4 | 1 | ...... | ...... | 2 | ...... | ...... | 1 | |
| JfVb-3.... | 1 | ...... | ...... | ...... | ...... | ...... | ...... | 1 | |
| JdUi-1.... | 1 | ...... | ...... | ...... | 1 | ...... | ...... | ...... | |
| IwTl-1.... | 1 | ...... | ...... | ...... | 1 | ...... | ...... | ...... | |
| JcUi-1.... | 1 | ...... | ...... | ...... | 1 | ...... | ...... | ...... | |
| JfUm-1.... | 2 | ...... | ...... | 1 | 1 | ...... | ...... | ...... | |
| JhVf-2.... | 1 | ...... | ...... | ...... | 1 | ...... | ...... | ...... | |
| JcUn-1.... | 1 | ...... | ...... | 1 | ...... | ...... | ...... | ...... | |
| JhVf-8.... | 1 | ...... | 1 | ...... | ...... | ...... | ...... | ...... | |
| JjVj-6.... | 1 | ...... | 1 | ...... | ...... | ...... | ...... | ...... | |
| JeVe-6.... | 1 | 1 | ...... | ...... | ...... | ...... | ...... | ...... | |
| JhVr-1.... | 1 | 1 | ...... | ...... | ...... | ...... | ...... | ...... | |
| KkVa-1.... | 1 | ...... | 1 | ...... | ...... | ...... | ...... | ...... | |
| JgVp-1.... | 5(5) | ...... | ...... | ...... | 4(4) | 1(1) | ...... | ...... | |
| TOTALS.... | 126(25) | 12 | 14(3) | 13(3) | 44(9) | 22(7) | 8(1) | 13(2) | |

**Flat-topped snub-nosed end scrapers (Plate III, fig. 8, 9)**

*Sample*: 43

Form and chipping technique: These range from oblong to triangular in outline and are roughly truncated in cross-section. Their ventral surfaces are flat, and the dorsal surfaces have steep retouching on one shorter edge and adjacent parts of the longer edges. This steep retouching leads up to a relatively flat central portion on their dorsal surface.

Dimensions: Length, 21 to 69 mm. Average, 36 mm.
Width, 15 to 39 mm. Average, 30 mm.
Thickness, 5 to 12 mm. Average, 7 mm.

Geographical and temporal relationships: One of these was found in the Little Arm complex, but they are most common in the Gladstone and Taye Lake complexes. As far as the interior of the Northwest is concerned, they are the most common type.

**Ovoid end scrapers (Plate III, fig. 6, 7)**

*Sample*: 22

Form and chipping technique: These are plano-convex in cross-section and round to ovoid in outline. Their ventral surfaces are flat, and the dorsal surfaces have a few flake scars on their central portions and steep retouching along about three-quarters of their edges.

Dimensions: Diameter, 28 to 60 mm. Average, 39 mm.
Thickness, 8 to 14 mm. Average, 12 mm.

Geographical and temporal relationships: These start in the Little Arm complex and last up through Aishihik times. They are very common throughout the Northwest.

**End-of-the-blade scrapers**

*Sample*: 8

Form and chipping technique: These are long, triangular to rectangular in outline. They have been made from a large thick prismatic blade, and the shorter end adjacent to the striking platform has steep retouching on its dorsal surface. Two have retouching along the lateral edges.

Dimensions: Length, 26 and 63 mm. (2 specimens).
Width, 13 to 21 mm. Average, 18 mm.
Thickness, 4 to 15 mm. Average, 7 mm.

Geographical and temporal relationships: In southwest Yukon, most of these were found with the Taye Lake complex, though one occurred with the Gladstone complex. They also occur with the N. T. Docks (MacNeish, 1956a), Fishermans Lake (MacNeish, 1954), and Lockhart River complexes (MacNeish, 1951), in the Northwest Territories with Natulkuz Lake site in British Columbia (Borden, 1952b), and with the Tyone River (Irving, 1957) and Campus sites (Rainey 1939) in Alaska.

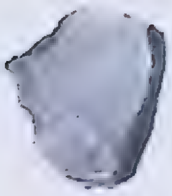
### Plate III

(Neg. No. J5005)
(½ natural size)

Fig. 1, 2. Thumbnail end scrapers (JjVj-1 and JfVb-3).
Fig. 3. Gun flint (JbUq-1).
Fig. 4, 5. Large plano-convex end scraper (JcUn-1 and JfUm-1).
Fig. 6. 7. Ovoid end scrapers (JeVi-1 and JeVc-1).
Fig. 8, 9. Flat-topped snub-nosed end scrapers (JeVc-2 and JhVq-1).
Fig. 10. Large plano-convex finely-made end scraper (KkVa-2).
Fig. 11, 12. Flat-flake end scraper (J,Vs-2).
Fig. 13, 14. Keeled end scraper (JjVi-2 and JjVj-2).

PLATE III

1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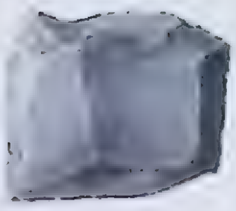
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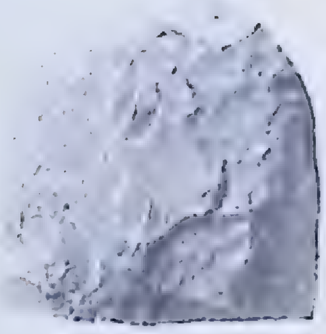
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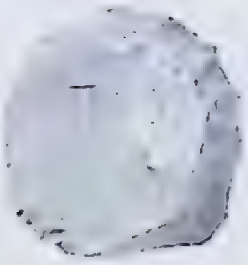
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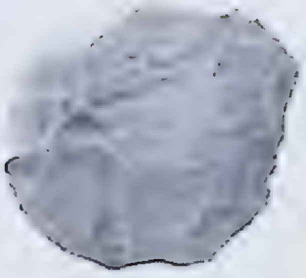
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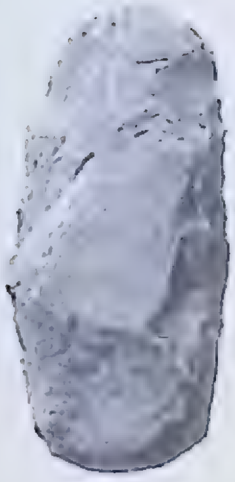
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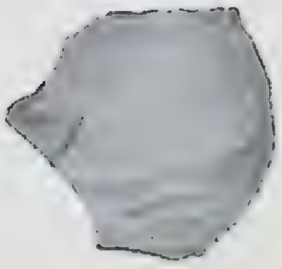
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**Thumbnail end scrapers (Plate III, fig. 1, 2)**

*Sample*: 13

Form and chipping technique: These range from being oblong to triangular in outline, are quite small in size, and are roughly planoconvex in cross-section. Five have a flat portion on their dorsal surface, while eight are more noticeably turtle-shell in form. The central part of the dorsal surface has a few rough percussion flakes on it, while there is steep retouching around half to three-quarters of their edges.

Dimensions: Length, 21 to 27 mm. Average, 23 mm.
Width, 18 to 25 mm. Average, 21 mm.
Thickness, 3 to 7 mm. Average, 5 mm.

Geographical and temporal relationships: These occur at the Aishihik and Bennett Lake complexes in the southwestern Yukon. Elsewhere in the Northwest they appear in late prehistoric, proto-historic, and historic horizons.

### BIFACIAL BLADES (*See* Table 4)

There are 251 of these blades; 120 of them were fragmentary parts. The rest could be divided into six general types; one of these types is presented by a single specimen.

**Pebble chopper (Plate IV, fig. 4)**

*Sample*: 1

Form and chipping technique: This is a cobble that has been broken in half and then percussion-flaked on its broken end to form a pebble chopper.

Dimensions: Length, 82 mm.
Width, 59 mm.
Thickness, about 40 mm.

Geographical and temporal relationships: Only one of these was found. It was in a deeply buried site north of Dawson City (LbVl-1).

**Ovoid bifaces (Plate IV, fig. 6, 7)**

*Sample*: 25

Form and chipping technique: These are ovoid bifaces, relatively thin, which bear percussion flaking on their surfaces and pressure retouching on their edges.

Dimensions: Length, 50 to 130 mm. Average, 84 mm.
Width, 33 to 74 mm. Average, 45 mm.
Thickness, 5 to 19 mm. Average, 11 mm.

Geographical and temporal relationships: A very general type found throughout much of North America.

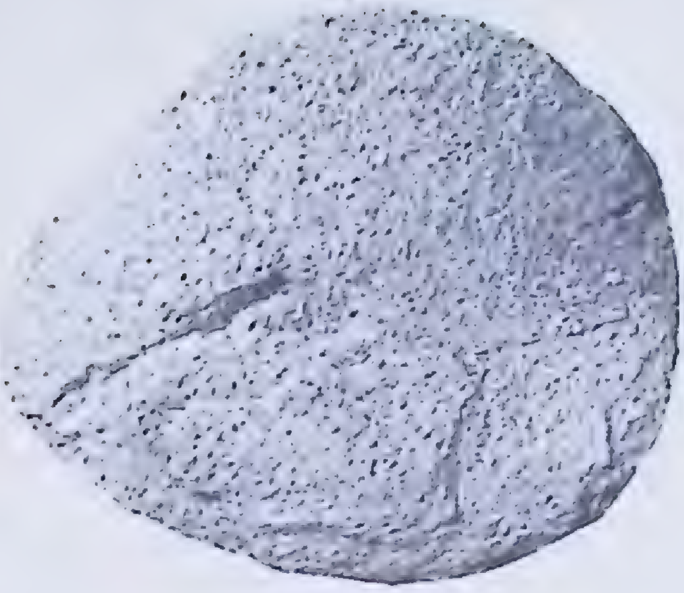
TABLE 5.—TENTATIVE BIFACIAL TYPES

| SITES | TOTALS | Pebble Chopper | Crude Core Choppers | Thick Biface Choppers | Thin Square-based Bifaces | Thin Ovoid Bifaces | Thin Bifacial Blade Fragments | Chi-Tho Bifaces | CULTURE COMPLEXES |
|---|---|---|---|---|---|---|---|---|---|
| JbUq-1 | 5 | | 2 | 1 | | 1 | | 1 | Bennett |
| JhVf-4 | 6 | | 3 | | | 1 | 1 | 1 | |
| JhVf-9 | 1 | | | | | | | 1 | |
| JbUq-2 | 1 | | | | | | | 1 | |
| JiVs-3 | 3(3) | | | | | | 1(1) | 2(2) | Aishihik |
| KeVd-2 | 1 | | 1 | | | | | | |
| JhVf-5 | 3 | | 1 | 1 | | | | 1 | |
| JfVg-1 | 1 | | | | | | | 1 | |
| JjVi-3 | 1 | | | | | | | 1 | |
| JeVe-1 | 2 | | | 2 | | | | | Taye Lake |
| JfVb-5 | 16 | | 8 | 1 | | 3 | 4 | | |
| JfVb-1 | 19 | | 11 | | 3 | 2 | 2 | 1 | |
| HjRr-1 | 3 | | 3 | | | | | | |
| JfVb-7 | 38 | | 12 | 4 | 2 | 13 | 7 | | |
| KfVh-1 | 2 | ? | | | | 1 | 1 | | |
| JeVe-2 | 8(6) | | 6(4) | 1(1) | | 1(1) | | | |
| IeSh-1 | 50(23) | | 27(12) | 4(4) | 2 | 11(5) | 6(2) | | |
| JeVe-4 | 5 | | 5 | | | | | | Gladstone |
| JjVj-5 | 1 | | | | | 1 | | | |
| JfVg-3 | 5(1) | | 5(1) | | | | | | |
| JhVq-1 | 12(2) | | 1 | 3(1) | 7(1) | 1 | | | |
| LaVk-2 | 1 | | | | 1 | | | | |
| JeVe-5 | 2(2) | | 1(1) | 1(1) | | | | | Little Arm |
| JeVe-1 | 4(1) | | 4(1) | | | | | | |
| KkVa-2 | 5 | | 4 | | 1 | | | | |
| JiVs-1 | 5 | | 2 | 2 | | | | 1? | |
| JiVs-2 | 5(2) | | 4(1) | 1(1) | | | | | |
| JeVi-1 | 1(1) | | 1(1) | | | | | | |
| JjVj-2 | 2 | | 1 | | | 1 | | | |
| JjVi-2 | 1 | | 1 | | | | | | |
| JeVe-3 | 1 | | 1 | | | | | | Champagne |
| JfVe-2 | 1 | | 1 | | | | | | |
| JjVj-4 | 2 | | 2 | | | | | | |
| LaVk-1 | 1 | | | | | | | 1 | |
| JjVi-1 | 1 | | | | | | | 1 | |
| JhVf-1 | 1 | | | | | | | 1 | |
| JkUs-1 | 2 | | | | | | | 2 | |
| JhVf-7 | 1 | | | | | | | 1 | |
| JfVb-4 | 13 | | 8 | | 1 | 1 | 3 | | |
| JfVb-3 | 3 | | 1 | | | 1 | | 1 | |
| JdUi-1 | 4 | | | 1 | | | | 3 | |
| JfUm-1 | 1 | | | | | | | 1? | |
| JeUn-1 | 1 | | 1 | | | | | | |
| JfVe-1 | 1 | | 1 | | | | | | |
| JiUw-1 | 1 | | | | | 1 | | | |
| JhVr-1 | 1 | | 1 | | | | | | |
| JhVf-8 | 2 | | | 2 | | | | | |
| JiVi-2 | 1 | | | 1 | | | | | |
| IgSk-1 | 1 | 1 | | | | | | | |
| KjTx-2 | 1 | | 1 | | | | | | |
| KeVh-1 | 1 | | 1 | | | | | | |
| LbVl-1 | 1 | 1 | | | | | | | |
| TOTALS | 251(41) | 2? | 121(21) | 25(8) | 17(1) | 39(6) | 25(3) | 20(2) | |

Plate IV
(Neg. No. J5004)
(½ natural size)

| | |
|---|---|
| Fig. 1. | Chi-Tho bifaces (JjVi-3). |
| Fig. 2. | Core chopper (IeSh-1). |
| Fig. 3. | Biface chopper or quarry blank (IeSh-1).<br>9 |
| Fig. 4. | Pebble or biface chopper (KfVh-1). |
| Fig. 5. | Thin square-based biface (JhVq-1). |
| Fig. 6, 7. | Ovoid thin bifaces (JhVf-8 and JbUq-1). |

PLATE IV



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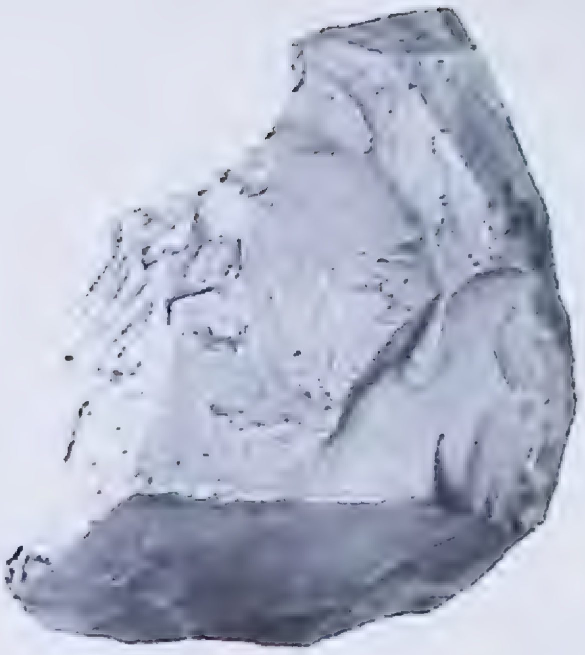

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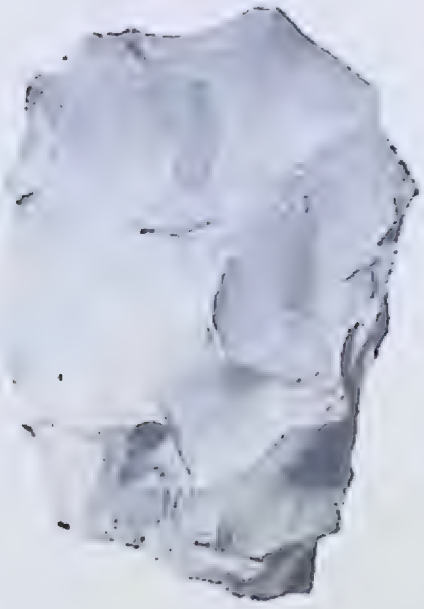

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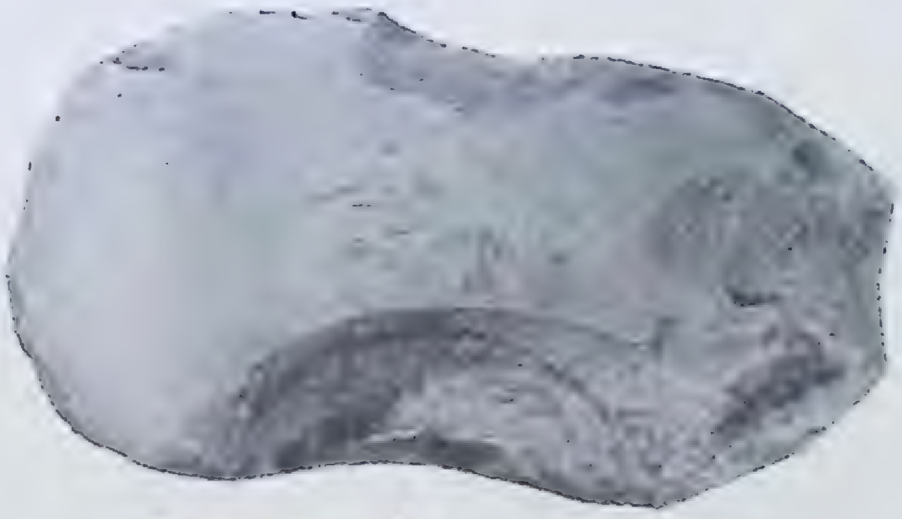

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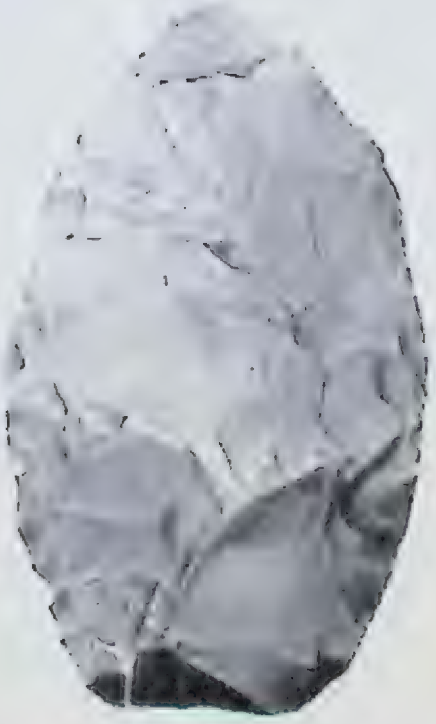

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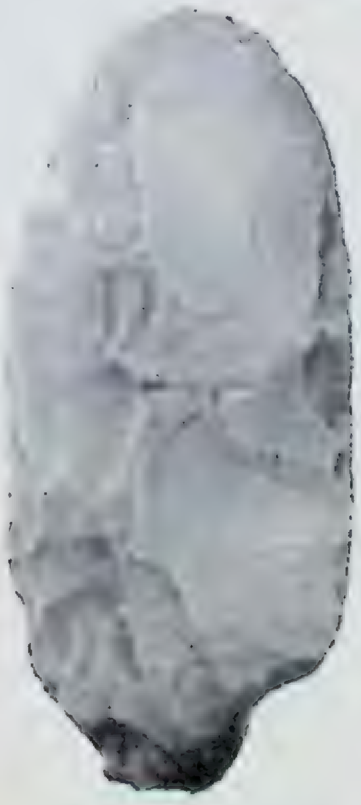

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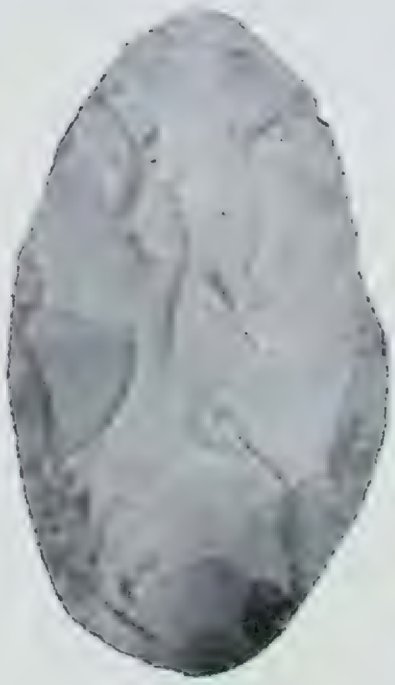

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### Square-based bifaces (Plate IV, fig. 5)

*Sample*: 19

Form and chipping technique: These are more or less triangular in outline with their lateral edges being either contracting and straight to the point or roughly parallel and slightly convex leading to an abrupt point. The bases are usually straight and at more or less right angles to the lateral edges. Most of the specimens bear percussion flaking on their surfaces and pressure flaking on their edges.

Dimensions: Length, 60 to 130 mm. Average, 90 mm.
Width, 31 to 61 mm. Average, 45 mm.
Thickness, 6 to 16 mm. Average, 12 mm.

Geographical and temporal relationships: While this is a general type appearing over much of North America, in southwest Yukon it is most often associated with the micro-blade horizons.

### Biface choppers (Plate IV, fig. 3, 4)

*Sample*: 37

Form and chipping technique: These are roughly ovoid in outline, though a few are almost tear-drop shaped. The flaking on their two surfaces is almost entirely percussion, while one or more portions of their edges show evidence of battering.

Dimensions: Length, 50 to 105 mm. Average, 83 mm.
Width, 30 to 98 mm. Average, 48 mm.
Thickness, 12 to 23 mm. Average, 17 mm.

Geographical and temporal relationships: In the southwest Yukon these were almost entirely confined to the Taye Lake horizon.

### Core choppers (Plate IV, fig. 2)

*Sample*: 25

Form and chipping technique: These are rough chunks of flint that show crude flaking on their surfaces and battering on one or more edges.

Dimensions: Diameter, 41 to 92 mm. Average, 37 mm.
Thickness, 11 to 38 mm. Average, 21 mm.

Geographical and temporal relationships: These occur mainly in the Taye Lake horizon in southwest Yukon, but they are fairly common in early horizons in the Northwest.

### Chi-Tho bifaces (Plate IV, fig. 1)

*Sample*: 20

Form and chipping technique: These are oblong, ovoid, or round in outline, usually quite flat, with rough percussion flaking along their edges. They are usually made out of some sort of granular stone, such as sandstone.

TABLE 6.—TENTATIVE SIDE SCRAPER TYPES

| SITES | TOTALS | Thin flake, one edge retouched | Thin flake, two edges retouched | Thick flake, one edge retouched | Thick flake, two edges retouched | Ovoid core, multi-edges retouched | Spoke-shave-like flakes | CULTURE COMPLEXES |
|---|---|---|---|---|---|---|---|---|
| JbUq-1 | 4 | 3 | | 1 | | | | Bennett |
| JhVf-4 | 2 | 1 | | 1 | | | | |
| JbUq-2 | 4 | 3 | 1 | | | | | |
| JhVf-9 | 1 | 1 | | | | | | |
| JiVs-3 | 1 | 1 | | | | | | Aishihik |
| KeVd-2 | 2 | 2 | | | | | | |
| JhVf-5 | 1 | 1 | | | | | | |
| JfVg-1 | 6 | 3 | 3 | | | | | |
| JjVi-3 | 2 | | | | 2 | | | |
| JbUr-1 | 1 | 1 | | | | | | |
| JcVe-1 | 2 | 2 | | | | | | Taye Lake |
| JfVb-5 | 8 | 4 | 1 | 3 | | | | |
| JfVb-1 | 6 | 1 | 1 | 4 | | | | |
| HjRr-1 | 2 | 1 | 1 | | | | | |
| JfVb-7 | 8 | 3 | 2 | 1 | 2 | | | |
| KiVc-1 | 3 | 2 | | 1 | | | | |
| KfVh-1 | 1 | 1 | | | | | | |
| JeVc-2 | 13(4) | 2 | 6(2) | 3(2) | 1 | 1 | | |
| IeSh-1 | 101(36) | 66(22) | 10(5) | 16(6) | 8(3) | | 1 | |
| JeVc-4 | 13 | 6 | 4 | 2 | | | 1 | Gladstone |
| KkTx-1 | 1 | 1 | | | | | 1 | |
| JjVj-5 | 3 | 3 | | | | | | |
| JjVj-3 | 1 | | | 1 | | | | |
| JfVg-3 | 8(6) | 1(1) | 2(1) | 4(3) | 1(1) | | | |
| JhVq-1 | 21(4) | 11(2) | 6(2) | 4 | | | 1 | |
| LaVk-2 | 8 | 7 | | | | 1 | | |
| JeVc-5 | 13(12) | 5(5) | 6(5) | 2(2) | | | | Little Arm |
| JeVc-1 | 9(1) | 4(1) | 3 | 2 | | | | |
| KkVa-2 | 11 | 5 | 3 | 2 | 1 | | | |
| JiVs-1 | 3 | 2 | | 1 | | | | |
| JiVs-2 | 12(7) | 6(5) | 3(1) | 3(1) | | | | |
| JeVi-1 | 6(6) | 5(5) | 1(1) | | | | | |
| JjVj-2 | 1 | 1 | | | | | | |
| JjVi-2 | 3 | 2 | | | | | 1 | |
| JhVh-1 | 3 | 3 | | | | | | |
| JfVg-2 | 1 | | | 1 | | | | Champagne |
| JiVs-4 | 1 | 1 | | | | | | |
| JgVd-1 | 1 | 1 | | | | | | |
| JbUq-6 | 2 | 1 | 1 | | | | | |
| JeVc-3 | 3 | 2 | 1 | | | | | |
| JfVc-2 | 2 | | 2 | | | | | |
| JjVj-4 | 1 | 1 | | | | | | |
| JbUq-4 | 4 | 1 | 2 | | 1 | | | |
| KjTx-1 | 5 | 3 | 2 | | | | | |

## Table 6.—Tentative Side Scraper Types—*Conc.*

| Sites | Totals | Thin flake, one edge retouched | Thin flake, two edges retouched | Thick flake, one edge retouched | Thick flake, two edges retouched | Ovoid core, multi-edges retouched | Spoke-shave-like flakes | Culture Complexes |
|---|---|---|---|---|---|---|---|---|
| KlTx-1 | 1 | | | 1 | | | | |
| JfVb-6 | 1 | | | | | | 1 | |
| JhUr-1 | 3 | | 1 | 1 | | 1 | | |
| KjTx-2 | 1 | 1 | | | | | | |
| JfVb-4 | 6 | 2 | 2 | 2 | | | | |
| JfVb-3 | 5 | 2 | 1 | 4 | | | | |
| JhVf-7 | 1 | | | 1 | | | | |
| JfVc-1 | 4 | 2 | | 2 | | | | |
| JqVp-1 | 17(17) | 11(11) | 4(4) | 2(2) | | | | |
| KeVd-1 | 1 | | 1 | | | | | |
| LdFu-1 | 1 | 1 | | | | | | |
| JiVg-1 | 1 | | 1 | | | | | |
| JeVc-6 | 1 | | 1 | | | | | |
| JdUi-1 | 2 | 1 | 1 | | | | | |
| JdUp-1 | 1 | 1 | | | | | | |
| JcUi-1 | 1 | 1 | | | | | | |
| KeVh-1 | 2 | 2 | | | | | | |
| JiUw-1 | 1 | 1 | | | | | | |
| JfUm-1 | 2 | 2 | | | | | | |
| JhVf-3 | 1 | 1 | | | | | | |
| JkUs-1 | 1 | 1 | | | | | | |
| JgVf-1 | 1 | 1 | | | | | | |
| Totals | 359(93) | 199(52) | 73(21) | 65(16) | 16(4) | 3 | 6 | |

Dimensions: Length, 110 to 178 mm. Average, 128 mm.
Width, 62 to 99 mm. Average, 72 mm.
Thickness, 2 to 11 mm. Average, 4 mm.

### UNIFACIAL SIDE SCRAPERS (*See* Table 5, Plate V)

**Single-edge flake side scrapers Plate V, fig. 1)**

*Sample*: 100

Form and chipping technique: These are flat flakes with retouching on one of their surfaces along one edge.

Dimensions: Length, 24 to 60 mm. Average, 51 mm.
Width, 10 to 55 mm. Average, 30 mm.
Thickness, 2 to 10 mm. Average, 6 mm.

Geographical and temporal relationships: Very widespread.

**Double-edge flake side scrapers (Plate V, fig. 2, 3, 4)**

*Sample*: 73

Form and chipping: These are irregular-shaped flakes with two edges bearing retouching. A few are pointed since adjacent edges are retouched, but most have the retouching on opposite edges.

Dimensions: Length, 36 to 53 mm. Average, 44 mm.
Width, 15 to 55 mm. Average, 31 mm.
Thickness, 3 to 12 mm. Average, 7 mm.

Geographical and temporal relationships: Very common type.

**Single-edge thick side-scrapers (Plate V, fig. 10)**

*Sample*: 63

Form and chipping technique: These are made from thick flakes with one side flat and the other bearing a few rough flake scars. Retouching is along one edge of the surface bearing the numerous flake scars.

Dimensions: Length, 44 to 82 mm. Average, 64 mm.
Width, 19 to 57 mm. Average, 50 mm.
Thickness, 9 to 22 mm. Average, 16 mm.

Geographical and temporal relationships: As far as the southwest Yukon is concerned, these appear mainly with horizons having micro blades.

**Double-edge thick side scrapers (Plate V, fig. 8)**

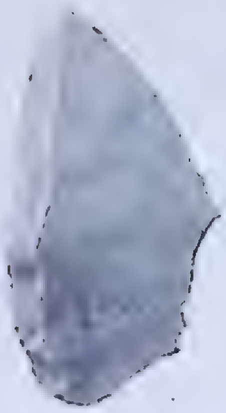
*Sample*: 16

Form and chipping technique: These are made of large irregular-shaped thick flakes with one surface flat and the other bearing percussion flaking. A few have the pressure flaking on adjacent dorsal edges, thereby forming a point, but the majority have the retouching on opposite edges of the dorsal surface.

PLATE V
(Neg. No. J5010)
($\frac{1}{2}$ natural size)

Fig. 1. Thin flake, one edge retouched (JdUi-1).
Fig. 2–4. Thin flake, two edges retouched (IeSh-1, JfVg-1, JbUq-6).
Fig. 5–7. Spoke shave-like tools (JjVi-2, JfVb-6), JhVq-1).
Fig. 8. Thick flake, two edges retouched (IeS$\frac{\text{h}}{9}$-1).
Fig. 9. Ovoid core, multi edges retouched (J,Vs-2).
Fig. 10. Thick flake, one edge retouched (KfVs-1).
Fig. 11. Thick flake or core, one edge retouched (JiVs-X).

PLATE V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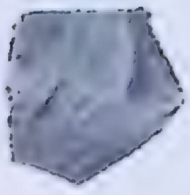
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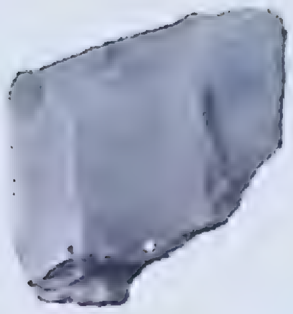
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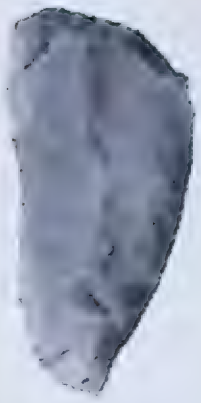
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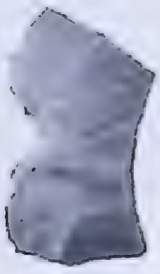
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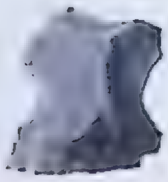
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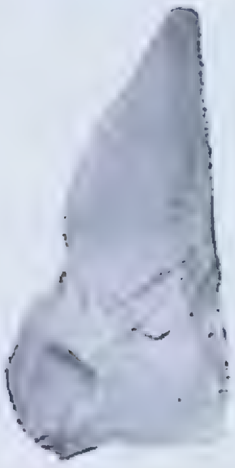
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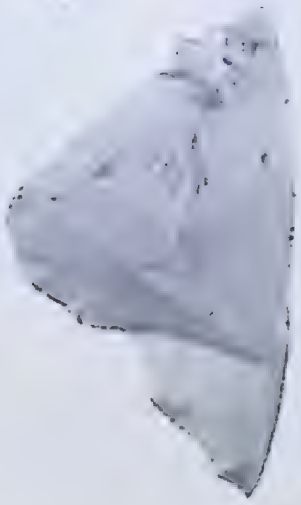
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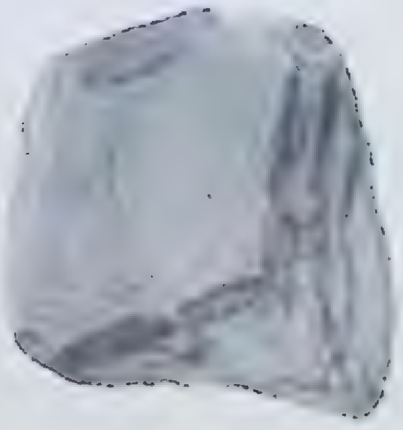
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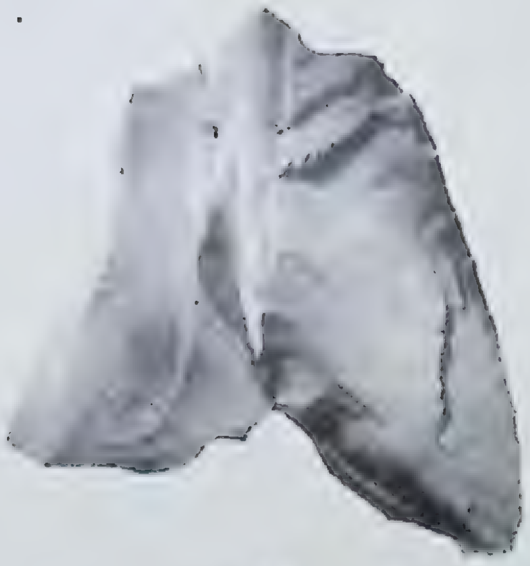
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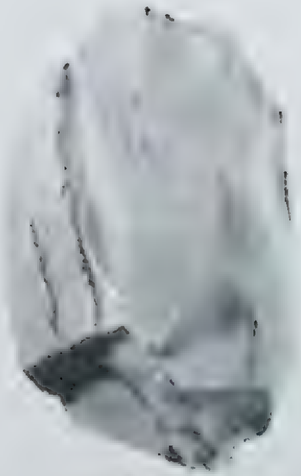
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Dimensions: Length, 55 to 83 mm. Average, 67 mm.
Width, 31 to 50 mm. Average, 42 mm.
Thickness, 8 to 19 mm. Average, 13 mm.

Geographical and temporal relationships: In the southwest Yukon these scrapers appear mainly in the Taye Lake horizon.

**Large core side scrapers (Plate V, fig. 11)**

*Sample*: 3

Form and chipping technique: These are made from large chipped nodules of flint that have been split in half. Their edges on the convex surface have usually been roughly retouched either along the longer sides or all the way around.

Dimensions: Diameter. 71 to 94 mm.
Thickness, 11 to 55 mm.

Geographical and temporal relationships: Unknown.

**Spoke-shave-like tools (Plate V, fig. 5, 6, 7)**

*Sample*: 6

Form and chipping technique: Five of these are roughly rectangular in outline; one is triangular. They are all thin flakes, flat on one side, with a few percussion flake scars on their other surface. One long edge of this dorsal surface has been retouched by pressure flaking to form a concavity.

Dimensions: Length, 48 to 70 mm. Average, 52 mm.
Width, 35 to 53 mm. Average, 42 mm.
Thickness, 6 to 12 mm. Average, 8 mm.

Geographical and temporal relationships: Unknown.

### OTHER ARTIFACTS

**Three-quarter-grooved adzes (Plate VI, fig. 1 to 3)**

*Sample*: 3

Form and manufacturing technique: These are all roughly rectangular in outline and plano-convex in cross-section. They are made from hard greenstone and have been polished into shape. One or two grooves have been ground into all but their flat surface.

Dimensions: Length, 131 to 178 mm. Average, 157 mm.
Width, 38 to 68 mm. Average, 61 mm.
Thickness, 29 to 50 mm. Average, 47 mm.

Geographical and temporal relationships: These seem to be confined to the Aishihik and Bennett Lake complexes. I have been unable to determine their wider geographical range.

### Net sinkers (Plate VI, fig. 6)

*Sample*: 5

Form and manufacturing technique: These are flat elongate pebbles. The lateral edges of the two opposed longer sides have been notched by three or four percussion blows.

Dimensions: Length, 155 mm.
Width, about 75 mm.
Thickness, about 25 mm.

Geographical and temporal relationships: Although these appear only in our Bennett Lake complex, I have a suspicion they eventually will be found in earlier complexes in the area. They have a wide range over much of North America.

### Antler paddle-like tool (Plate VI, fig. 7)

*Sample*: 1

Form and manufacturing technique: This is made of a flat piece of antler and has the general form of a short paddle. The blade-like section of the paddle bears five concentric circles forming a line down its middle. These were evidently made by some compass-like cutting tool. The two lateral edges of the paddle bear two V-shaped notches in them. At the junction of the blade and the shaft of the paddle on the two lateral edges are two carved lizard-like animals with their tails running out along the edge of the paddle blade. The shaft of the paddle is circular in cross-section and is encircled by nine carved parallel grooves.

Dimensions: Length, 154 mm.
Width, 47 mm.
Thickness, 15 mm.

Geographical and temporal relationships: Unknown.

### Unilateral multi-barbed antler arrowpoint (Plate VI, fig. 8)

*Sample*: 1

(A local person at Fort Selkirk had one, which we could not obtain, but there is one almost identical to it in the museum collections from near Fort Selkirk. This latter is the one described and illustrated here.)

Form and manufacturing technique: This is ground out of antler and is prismatic in cross-section. The base is conical in cross-section, and the tip is a very flat prism. On one of the prismatic edges, six V-shaped notches have been cut to form barbs, and there are two parallel incised lines on the sides adjacent to the barbed portion.

Dimensions: Length, more than 160 mm.
Width, 10 mm.
Thickness, 10 mm.

Geographical and temporal relationships: Points similar to these are found throughout Athabascan territory in late prehistoric and early historic time periods.

TABLE 7.—OTHER ARTIFACT TYPES

| SITES | ¾-grooved celt or adze | Net sinkers | Bone paddle | Unilateral multi-barbed bone point | Glass scraper | Glass beads | Gun-flint | CULTURE COMPLEXES |
|---|---|---|---|---|---|---|---|---|
| JbUq-1 | ....... | 1 | ....... | ....... | ....... | 9 | 1 | Bennett |
| JbUq-2 | 1 | ....... | ....... | ....... | ....... | x | ....... | |
| JiVs-3 | 1 | ....... | ....... | ....... | ....... | ....... | ....... | Aishihik |
| JjVi-1 | ....... | ....... | ....... | ....... | ....... | 1 | ....... | |
| JjVi-4 | ....... | 4 | ....... | ....... | ....... | 11 | ....... | |
| KeVd-1 | ....... | ....... | 1 | 1 | 1 | ....... | ....... | |
| KbVa-1 | 1 | ....... | ....... | ....... | ....... | ....... | ....... | |
| TOTALS | 3 | 5 | 1 | 1 | 1 | 21 | 1 | |

## COMPARISONS

In southwest Yukon and adjacent areas, 99 sites were identified (about one-third of which had been visited previously by either Leechman or Johnson). Forty-five of these sites had either too few artifacts or not enough distinctive artifacts to be classified or included in our analysis. The remaining 54 sites contained 1,054 artifacts (193 of which came from collections made by Frederick Johnson). Thirty-seven components were associated with distinctive soil horizons, but only 25 had enough artifacts for arrangement in a tentative chronology of artifact complexes.

Soil horizons of the area of Kluane Lake and environment immediately to the east had been studied by Capp, Bostock, Raup, Denny, and Johnson. While Johnson and his colleagues will be presenting a much more detailed study of these horizons, I will briefly summarize the soil stratigraphy. These are based on my reading of their material as well as on my conversations with them. Covering their total area is a thick humus which they felt has been established during the last thousand years. This overlies an area of brown loess, which at Kluane Lake is called Slim's River Silts. These, in turn, are over a volcanic ash stratum that has been dated by Carbon 14 as A.D. 430 (Johnson, 1951, p. 5). Underneath the ash is a pink soil, which Raup feels is a mature soil profile that represents the first forest invasion, which may have started during the post-glacial optimum, 5000 B.C. Though this pink soil is basically loess, it is felt that maturing of the profile by forest cover has resulted in its pink colour. Below this is windblown sand or loess, which they think was formed during the period following the retreat of the last glacier and before the forest invaded the area 7000 to 5000 B.C.

Because of these facts, we made an effort during the survey to determine from which of these strata the various artifacts from the various sites came. The following chart (Table 8) indicates the classifiable sites and their association with the soil zones.

TABLE 8.—CLASSIFIABLE SITES AND THEIR ASSOCIATION WITH THE SOIL ZONES

| Soil Zones | Stratified Sites | | Sites of Culture Complexes from the Soil Zones | | | | Aishihik | Bennett Lake |
|---|---|---|---|---|---|---|---|---|
| | JiVs-1 | JfVg-3 | Champagne | Little Arm | Gladstone | Taye Lake | | |
| Humus............ | Level 1 | | | | | | | JbUq-1<br>JhVf-4 |
| Brown loess and Slim's River silts | | Level 2 | | | | | KeVd-2<br>JhVi-5<br>JiVs-3 | |
| Volcanic ash ....... | | | | | | JfVb-5<br>JfVb-1 | | |
| Light brown loess and/or upper red loess | | Level 4 | | | JfVg-3<br>JjVj-5<br>JjVi-5<br>JhVq-1 | JfVb-7<br>JeVc-2 | | |
| Lower red soil or loess | Level 4 | | JjVj-4<br>KfVe-1<br>JgVd-1 | JeVc-1<br>JeVc-5<br>JeVi-1<br>JiVs-1<br>JiVs-2<br>KeVd-3 | | | | |
| Pale sand or loess | | | JiVs-4<br>JeVc-3<br>JfVc-2 | | | | | |

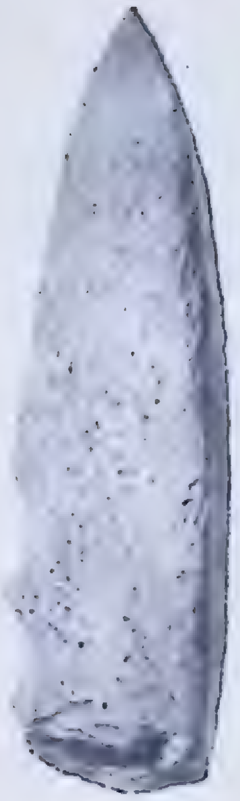
The next step in our analysis was to classify into types the artifacts from the horizons lying in the various sequential soil zones and, in turn, to segregate the site congeries of typed artifacts into culture complexes. Later, those sites without definite strata locations but with diagnostic artifacts were assigned to their respective culture complexes.

In the lowest stratum, the pale sandy loess, three sites occurred. JeVc-3 from near Champagne contained three distinctive artifact types: Agate Basin-like, Milnesand points, and Flat-flake end scrapers as well as more general traits such as bifacial blade fragments and side scrapers. The other two sites, JiVs-4 and JfVc-2, had fewer artifacts but appear to belong to the same complex. JfVc-2 had an Agate Basin-like point, while JiVs-4 had a Milnesand-like point. Three sites, KfVe-1, JgVd-1, and JjVj-4, from the lower part of the red soil had either Agate Basin-like or Milnesand-like points and a few more general artifact types, while JjVj-4 also had a flat-flake end scraper. Four other sites, JbUq-6, JhVf-6, JfVg-2,

PLATE VI
(Neg. No. J5007)
($\frac{1}{4}$ natural size)

Fig. 1. Adze, side view (XI-B-1)
Fig. 2. Adze, bottom view (XI-B-183).
Fig. 3. Adze, top view (XI-B-3).
Fig. 4,5. Native copper spear or projectile point (XI-B-184 and 269).
Fig. 6. Net sinker (JjVi-4).
Fig. 7. Antler paddle-like object (KeVd-1).
Fig. 8. Unilateral multi-barbed antler point (XI-B-282).
Fig. 9. Native copper knife (XI-B-290).
Fig. 10. Iron spear (XI-B-253).
Fig. 11. Bone awl (KeVd-1).

PLATE VI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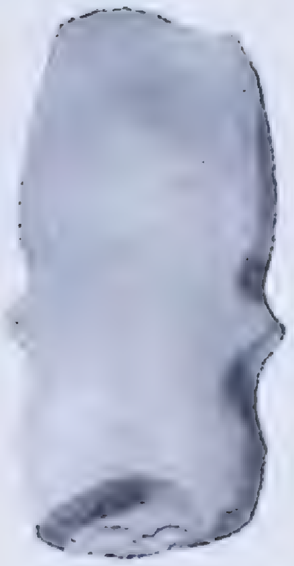
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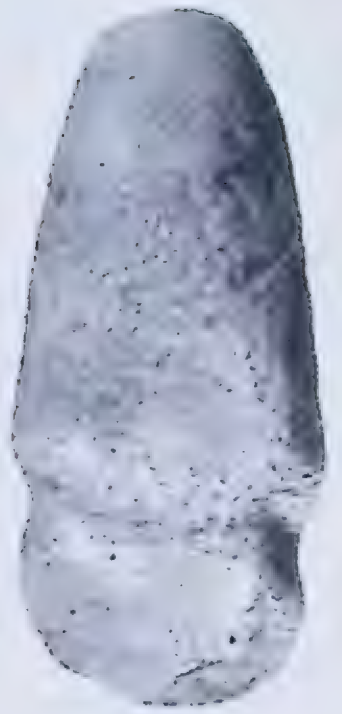
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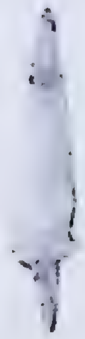
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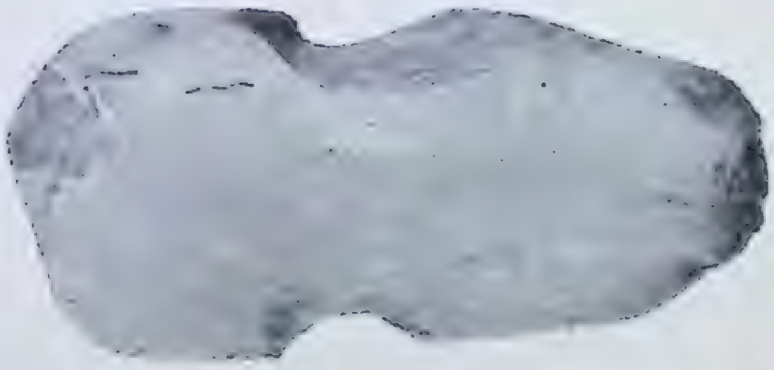
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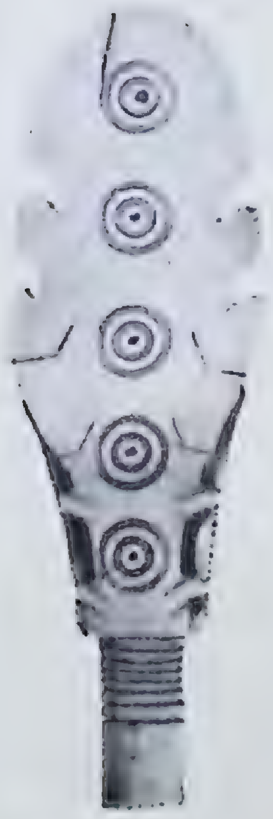
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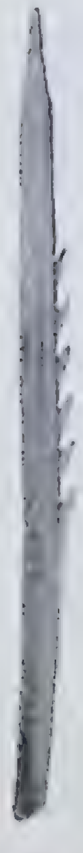
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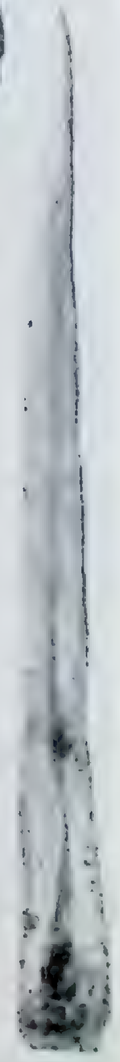
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and JbUq-4, whose soil zone could not be determined, also had either Agate Basin-like or Milnesand-like or Flat-flake end scrapers. KjTx-1 with a Plainview-like point and a Flat-flake and Keeled end scraper also seemed to belong to this artifact complex. These sites with the following diagnostic artifacts, Milnesand-like, Agate Basin-like, and Plainview-like points and Flat-flake end scrapers appear to compose a tentative complex called Champagne. The occurrence of six of these sites in the two earliest soil zones suggests that this complex perhaps existed from 4000 to 6000 B.C. This would seem to be in agreement with the ages given for sites with similar point types in the Great Plains farther south (Wormington, 1957, p. 140). As is obvious, excavation is very necessary for a clear definition of the artifact types and range of artifacts of this complex, as well as a more exact dating.

Artifacts of the second complex, called Little Arm, occurred well down in the red soil zone, often being near the junction of that zone with the yellow loess. Four of the larger sites were discovered by Frederick Johnson and called 1013, Little Arm, Champagne One, and Champagne Esker, which in this report are designated JeVi-1, JiVs-2, JeVc-5, and JeVc-1. We discovered two more in the same region in the same soil zone (JiVs-1 and KeVd-3). Comparisons with other sites from the survey revealed that KkVa-2, KaVa-1, JjVi-2, JjVj2 and JhVh-1 were very similar. Agate Basin-like and Milnesand-like points, tongue-shaped polyhedral cores, fine prismatic, truncated and crude micro blades, keeled and ovoid end scrapers; crude Fort Liard-type burins and burin spalls; and perhaps small lanceolate and lenticular points are diagnostic of the complex. More general traits, such as side scrapers with one or more edges retouched, bifacial knives, and choppers, occurred. Some sites, well down in the red soil, suggest an age between 3000 to 5000 B.C. for the complex.

The next two culture complexes both appear in the upper red soil and bear some resemblance to the previous one as well as to each other. JfVg-3, JjVi-5, JhVq-1, and JjVj-5 occur in this zone and were similar to LaVk-2, JhVf-1, KkTx-1, JeVc-4, and JjVj-3. These sites are considered to be components of the Gladstone complex. They are similar to the previous complex in having prismatic, truncated, and crude micro blades and a few ovoid end scrapers. They are like the succeeding complex in having side-notched convex or concave-based projectile points, conical polyhedral cores, snub-nosed flat-topped and ovoid end scrapers, and thick or thin prismatic and truncated blades, as well as the more general scraper types and ovoid and square-based types. However, this complex is different from Little Arm in lacking, for the most part, the Agate Basin and Milnesand-like points, and the Flat-flake end scrapers, and differs from the following Taye Lake complex in very rarely having large choppers or the large double-edge side scrapers. It also has more spoke-shaves than either of the other horizons, and many of the micro blades and blades are retouched. From many standpoints it appears to be transitional between these two complexes. Peculiarly enough, the two largest northwest interior micro-blade sites that have been dug, the Pointed Mountain and Campus sites, show their greatest resemblance to Gladstone and are not particularly similar to either Taye Lake or Little Arm.

JeVc-2 and JfVb-7 were also found in the red soil just under the ash, while JfVb-1 and JfVb-5 were in the lower part of the ash itself. The artifacts from these sites resemble those from JcUj-1, KfVh-1, KiVc-1, HjRr-1, KbVa-1, and JcVe-1. All these sites were characterized by large, crude, thick and thin prismatic and truncated blades, a wide range of large, crude core and bifacial choppers, flat-topped snub-nosed and end-of-the-blade end scrapers, double-edged side scrapers, side-notched points with concave or convex bases, and tabular polyhedral cores. The most striking aspect of these sites was the large number of crude bifaces and unifaces. The Callison site materials bear great resemblances to those from the Taye Lake complex. Callison and Taye Lake have in common: large convex-based side-notched and small lanceolate projectile points, large flat-topped triangular and end-of-the-blade end scrapers, crude tabular cores, ovoid and core choppers, large crude thick and thin prismatic and truncated blades, double-edge side scrapers, and a whole series of other bifacial tools. Though there are a few differences, they are represented by a limited number of traits and artifacts. For the present, one must consider that the Callison site is part of the Taye Lake complex.

Above the ash and in the brown loess but under the humus were KeVd-2, JhVf-5, and JiVs-3. These were like JfVg-1, JjVi-3, JaUe-1, and JdUr-1. Unfortunately, all these are represented by small samples of artifacts. However, most of them have large corner-notched points and/or side-notched points with concave bases, thumbnail scrapers, and Chi-Tho bifaces. These sites and artifacts I consider to belong to the Aishihik complex. As is perhaps obvious, it is very poorly defined, and excavation of sites with this kind of material is very necessary.

Two sites which we tested occurred in the humus, JbUq-1 and JhVf-4. Similar to these sites were JbUq-5, JbUq-2, and JhVf-9. These sites compose the Bennett complex and are characterized by small corner-notched and side-notched points, Chi-Tho scrapers, and thumbnail end scrapers. At one or more of them, net sinkers, three-quarter grooved adzes, celts, and fragments of bone tools were found. There also were the general side scrapers and ovoid blade fragments. In actual fact we spent very little time examining any of these sites and were not particularly lucky on the ones we did visit. Private collections from these sites, or ones like them, reveal that probably there are a host of diagnostic bone tools, such as unilateral multi-barbed bone or antler arrowpoints, bone beamers, bone needles, and long bone end scrapers. JbUq-1 contained a gun flint and some glass beads, while others in private collections had historic goods with them. Thus I think it is fair to presume that eventually this complex or divisions of it will be identified with specific historic tribes of the area.

## SUMMARY

In summary, then, comparisons of the Callison site with the southwest Yukon materials reveal that it is part of the Taye Lake complex.

Furthermore, there seems to be considerable evidence to indicate that the Taye Lake complex developed from the Gladstone complex, which, in turn, is related to the Campus (Rainey, 1939), Tyone River (Irving, 1957), and Pointed Mountain sites (MacNeish, 1954). Also, comparative evidence shows Gladstone to have been derived from Little Arm. This development from Little Arm to Gladstone to Taye Lake seems to represent a sequence of the Northwest Interior Micro-blade Tradition.

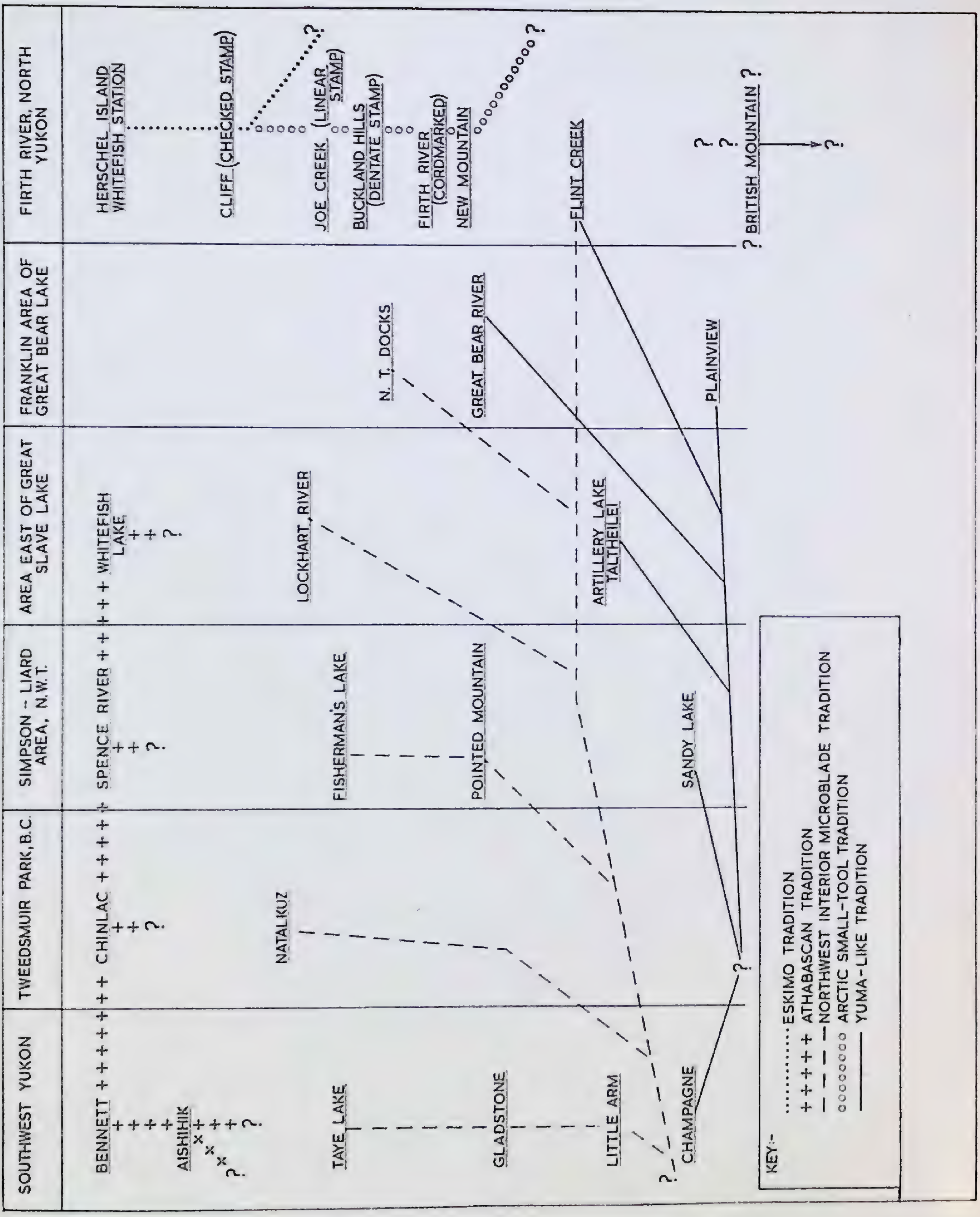
There are a number of other complexes in the Northwest that seem related to Taye Lake. One of these was found in the lower levels of the Natulkuz Lake site in central British Columbia (Borden, 1952b). This complex has been dated by Carbon 14 (by the solid Carbon 14 method, so it is perhaps a little late) as 2,400 years ago ± 160. The N. T. Docks complex (MacNeish, 1956a) of the west end of Great Bear Lake also has many traits in common with Callison. It has been dated as 5000 ± 200 and 4100±200 (S5 and 8 by the acetylene method, at the University of Saskatchewan). Thus it seems reasonable that the Callison site and the late horizons of the Northwest Micro-blade Tradition may be placed in the period between 2,500 and 4,000 years ago. Also related are the Fishermans Lake complex from near Fort Liard (MacNeish, 1954), and the Lockhart River complex (MacNeish, 1951) from east of Great Slave Lake in the barren lands, and perhaps the Birch Lake materials from central Alaska (*see* Skarland and Giddings, 1948). In common between Callison (Taye Lake complex) and those sites and complexes are side-notched points with convex or concave bases, end-of-the-blade scrapers, bifacial and core choppers, flat-topped snub-nosed end scrapers, spoke shaves, crude micro blades, and conical and tabular polyhedral cores, and thick or thin prismatic and truncated blades. On the basis of present evidence one cannot help but wonder if these sites, along with Callison, do not represent a general horizon throughout the Northwest, this horizon perhaps being the end of the Northwest Interior Micro-blade Tradition. As has been pointed out previously, the earlier phases of this micro-blade tradition have many specific resemblances to materials in Outer Mongolia and northeastern Siberia in what has been called "Late Paleolithic" or earliest Pre-ceramic Neolithic of that area (MacNeish, 1954, pp. 251-252; Tolstoy, 1958, p. 397).

As far as southwest Yukon is concerned, its Aishihik and Bennett complexes give little evidence of being derived from anything like the Northwest Interior Micro-blade Tradition. There also is no evidence of development of the late cultures from micro-blade traditions in the other parts of northwest North America. Perhaps such exists, but if so it has not been found as yet.

From the scanty evidence so far amassed, it also would appear that the Northwest Interior Micro-blade Tradition usually overlies an earlier tradition to which it is not closely related and from which it is not derived. This tradition, which might be called the Agate Basin or Yuma Tradition, includes such complexes as the Champagne, Artillery Lake, Sandy Lake, Great Bear River, and Flint Creek. Its affiliations certainly lie in the Great Plains to the south. Since it is dated somewhat earlier in the south than in the north, it may have moved into the north from the south before the Northwest Interior Micro-blade Tradition came in from Asia.

Resembling the Northwest Interior Micro-blade Tradition is another tradition that has been called the Arctic Small-tool Tradition (Irving, 1957). The two have in common micro blades and blades, conical polyhedral cores, end-of-the-blade scrapers, and flat-topped snub-nosed end scrapers, as well as a few general traits. They, however, are specifically different. The Arctic Small-tool Tradition has specialized multi-faceted burins, while the Northwest Interior Tradition has crude flake burins (Fort Liard type). Burin spall tools occur in the former, while specialized micro-blade tools appear in the latter. Small half-moon side-blades, small end-blades, the ripple-flake chipping technique, and perhaps chipped adzes, occur with the Arctic assemblages, while tongue-shaped cores, large dart or spear points, chopping tools, and numerous large crude unifaces and bifaces appear in the interior assemblages. Thus, though they may be distantly related and perhaps come from a common ancestor (in Asia) they developed along different lines.

As yet, there is little evidence to say exactly what their temporal alignment is. However, from the Campus site (Irving, 1955) there is one burin of the Cape Denbigh type, and at the Tyone River site (Irving, 1957) there were three diagonally-flaked side-blades like those of the Arctic Small-tool Tradition sites. Both these sites seem to represent middle period sites of the Northwest Interior Micro-blade Tradition. Further, on the Firth River (MacNeish, 1956b) the late part of the Flint Creek horizon seems more closely related to the Northwest Interior Micro-blade Tradition. It underlies the New Mountain Denbigh-like horizon that belongs to the Arctic Small-tool Tradition. Thus from the present evidence, it seems possible that the Northwest Interior Micro-blade Tradition represents an earlier thrust from the Asiatic "Paleolithic" (Okladnikov, 1950, pp. 141-164; Okladnikov, 1955, Plate 14) into the New World, which continues to develop in the Northwest, while the Arctic Small-tool Tradition is a later thrust from the "Siberian Neolithic" (Okladnikov, 1950; Tolstoy, 1958). Under this hypothesis, the latter would have arrived in the New World during the middle part of the development of the Northwest Interior Micro-blade Tradition, the two traditions then continuing to develop side-by-side, one making some sort of an Arctic coastal adaptation, the other making an Interior Boreal Forest adaptation (*See* Chart, p. 50).


SOUTHWEST YUKON
TWEEDSMUIR PARK, B.C.
SIMPSON - LIARD AREA, N.W.T.
AREA EAST OF GREAT SLAVE LAKE
FRANKLIN AREA OF GREAT BEAR LAKE
FIRTH RIVER, NORTH YUKON
BENNETT
AISHIHIK
CHINLAC
SPENCE RIVER
WHITEFISH LAKE
HERSCHEL ISLAND WHITEFISH STATION
CLIFF (CHECKED STAMP)
JOE CREEK (LINEAR STAMP)
BUCKLAND HILLS (DENTATE STAMP)
FIRTH RIVER (CORDMARKED)
NEW MOUNTAIN
TAYE LAKE
NATALKUZ
FISHERMAN'S LAKE
LOCKHART RIVER
N. T. DOCKS
GLADSTONE
POINTED MOUNTAIN
GREAT BEAR RIVER
LITTLE ARM
ARTILLERY LAKE (TALTHEILEI)
FLINT CREEK
CHAMPAGNE
SANDY LAKE
PLAINVIEW
BRITISH MOUNTAIN
?
KEY:-
..........ESKIMO TRADITION
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——— YUMA-LIKE TRADITION

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# A DESCRIPTION OF SADLERMIUT HOUSES EXCAVATED AT NATIVE POINT, SOUTHAMPTON ISLAND, N. W. T.

By William E. Taylor, Jr.[*]

In 1954 and 1955 the National Museum of Canada co-sponsored archæological work at Native Point on Southampton Island, N.W.T., under the direction of Dr. Henry B. Collins of the Smithsonian Institution, Washington, D.C.[1] During the 1956 season, I returned to Native Point for the National Museum of Canada to complete the field work. I was most fortunate to have as my co-worker in the field Mr. Charles H. McNutt, then Research Assistant in the Museum of Anthropology, University of Michigan.

We proceeded to Churchill, Manitoba, by rail and, after some weather delay, flew to Coral Harbour, Southampton Island. We are very grateful to the Foundation Company of Canada, Limited, for the air transport provided us during the summer. We are indebted also to Mr. A. T. Swaffield, manager of the Southampton post of the Hudson's Bay Company, for making local transport arrangements. For warm hospitality and many kind gestures we thank Mr. and Mrs. Swaffield, Father Choque, O.M.I., and Mr. and Mrs. Whitford, Department of Northern Affairs and National Resources. We must also thank Paniuk, Joe Curly, Pamiulik, and Ukerluk for their companionship and help while travelling.

On the evening of July 3, camp was made at Prairie Point, and on July 4 a permanent summer camp was set at Native Point on the east coast of South Bay. Collins' several articles have described the five sites at Native Point. The 1954–55 seasons concentrated on the Cape Dorset culture sites while the 1956 work was aimed at the Sadlermiut site. This site, at the western extremity of Native Point, consists of many graves and more than one hundred houses, and here, in the winter of 1902–03, the Sadlermiut were wiped out by disease. This paper will not attempt to summarize the previous archæological and ethnological data on the Sadlermiut, for such is better met in reading the pertinent publications or passage of Bird (1953), Boas (1888, 1907), Collins (1956a,b,c; 1957a,b; 1958), Comer (1910), Ferguson (1938), Holtved (1944), Low (1906), Lyon (1825), Manning (1942), Mathiassen (1927), Munn (1919), Parry (1824), and Sutton (1932–36).

The 1956 work had as its principal goal a study of Sadlermiut architecture, and only in a secondary way was there concern with artifacts and skeletal material, human or otherwise. Thus this paper is largely devoted to a description of Sadlermiut winter houses. The human skeletal material has been submitted to Dr. W. S. Laughlin, Department of Anthropology, University of Wisconsin, for analysis.

The field method was quite simple and direct. In 1955, Dr. J. N. Emerson had mapped the site, and the writer had completed a comprehensive summary of the house ruins. With this guide, two houses, numbers 34 and 49, were selected for excavation on the basis of their being relatively undisturbed, well-preserved, and representative. Their preservation was such that it was possible to excavate, record, and catalogue by feature and matrix, rather than by an arbitrary level and grid system. The usual photographic and map records were maintained along with field notes. At the last stage of excavation, detailed scale plans and various cross-section diagrams of each house were prepared. Finally, the structural stone work was removed to permit an examination of the materials underlying the extensive flagged areas. In House 34, in addition, two wall sections and the east side of the entrance passage were removed to facilitate an examination of the internal nature of house walls.

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[*] I am indebted to Dr. Henry B. Collins, Smithsonian Institution, for a critical reading of this paper.

[1] The other sponsors were the Smithsonian Institution, the National Geographic Society, and the American Philosophical Society. Collins has published results of the work (1956a,b,c; 1957a,b; 1958).

## HOUSE 34

This house was a large, two-room house, oriented south and set in and on the south side of a low bank. It is one of a row of houses facing a narrow oval pond and sphagnum-moss-filled marsh. The southern side of this marsh consists of another long, low bank, boasting a similar row of south-oriented houses. The house walls, like the bank, support a dense, tough vegetation of grasses, sedges, mosses, and wildflowers. The massive sod walls of House 34 surrounded a well-defined interior depression that was filled with a disarray of limestone slabs and a few boulders. A vegetation cover had developed among these rocks, and several human bones, animal bones, and caribou antlers were visible. A fragment of modern steel sled-shoeing and two rusty tin cans rested on the surface. Five fragments of whalebone were scattered around the base of the house depression; the largest was a 2-foot-long section of mandible. Also visible prior to excavation was a section of limestone roofing, *in situ,* projecting from the south face of the north wall of the house and supported by other stones. A human skull, later catalogued as Skull 1, lay on flagstones under this roof section and against the north wall. The passage depression was short and well defined, and at its southern extension there were indications of storage alcoves flanking it to east and west. A single column of horizontally coursed limestone slabs could be seen in the passage wall. In the depression forming the rooms, fourteen large vertical limestone slabs, which stood well above platform level, with one edge against the inner face of the sod walls, were visible. All these stones were projecting from the face of the sod walls and pointing to the centre of the rooms.[1] Despite the rock debris, the house interior suggested large sleeping platforms occupying most of each of the two rooms. Along the south wall, side benches seemed to extend from the front of each platform to the area of the entrance passage.

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[1] Such slab vertical stones will be noted repeatedly, and we have given them the term "Coats verticals," for it was on Coats Island in 1954 that we first gained a full appreciation of them. They occur abundantly and consistently in Sadlermiut houses on Southampton and Coats Islands and seem to be a diagnostic trait of Sadlermiut architecture. Mathiassen found them at Kuk (1927, Part I, Fig. 75, Fig. 76) and in his Figure 76 presents a sketch of a house ruin that depicts them rather inaccurately. They served as the sides of storage lockers around the periphery of the sleeping platforms, as observed by Comer (1910, p. 87). They also contributed to the roof support system. So far as the writer knows, the trait is absent in other prehistoric eastern Arctic houses, although vertical stone roof supports do occur in Thule culture houses (Holtved, 1944, Part 1, Fig. 67, Fig. 68).

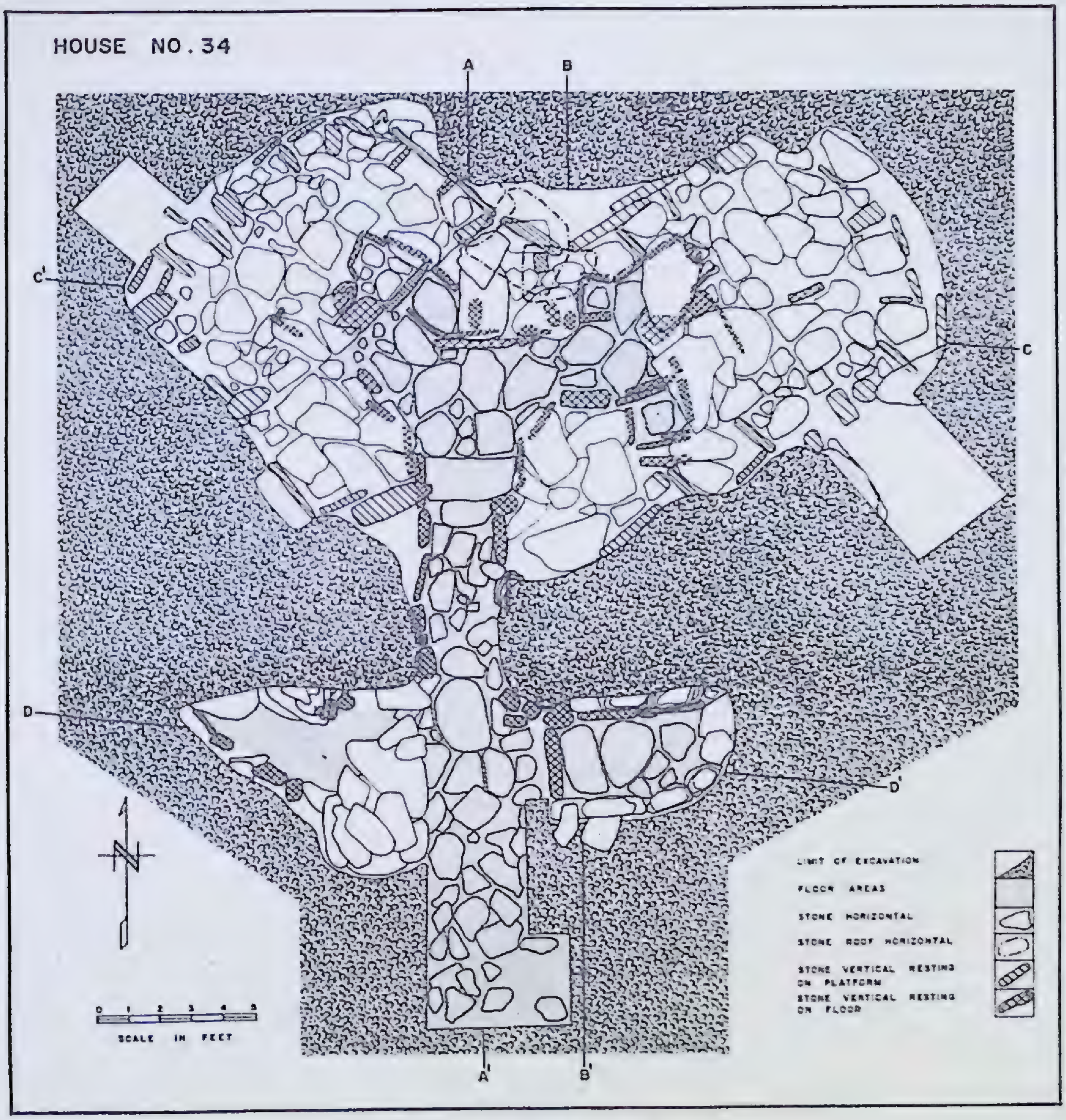

Figure 1. House 34. Plan map.

The appended plan and cross-section diagrams (Figures 1, 2, 3), presenting data on the proportions, orientation, and relationships of the House 34 components, supplement the following description. Generally, this house was encircled by a massive moss-sod wall built up well above ground-level. The inner wall surface was mostly of sod with some use of vertical limestones as facing slabs in consort with the projecting Coats verticals. Some twenty-two Coats verticals were found in the excavation. The floor, platform, and bench surfaces were quite horizontal and had well-fitted limestone flags. These surfaces were supported by a built-up bed of mixed gravel, humus, sods, and moss lumps containing an occasional walrus skull. Also prominent in substructure were vertical stone slabs;

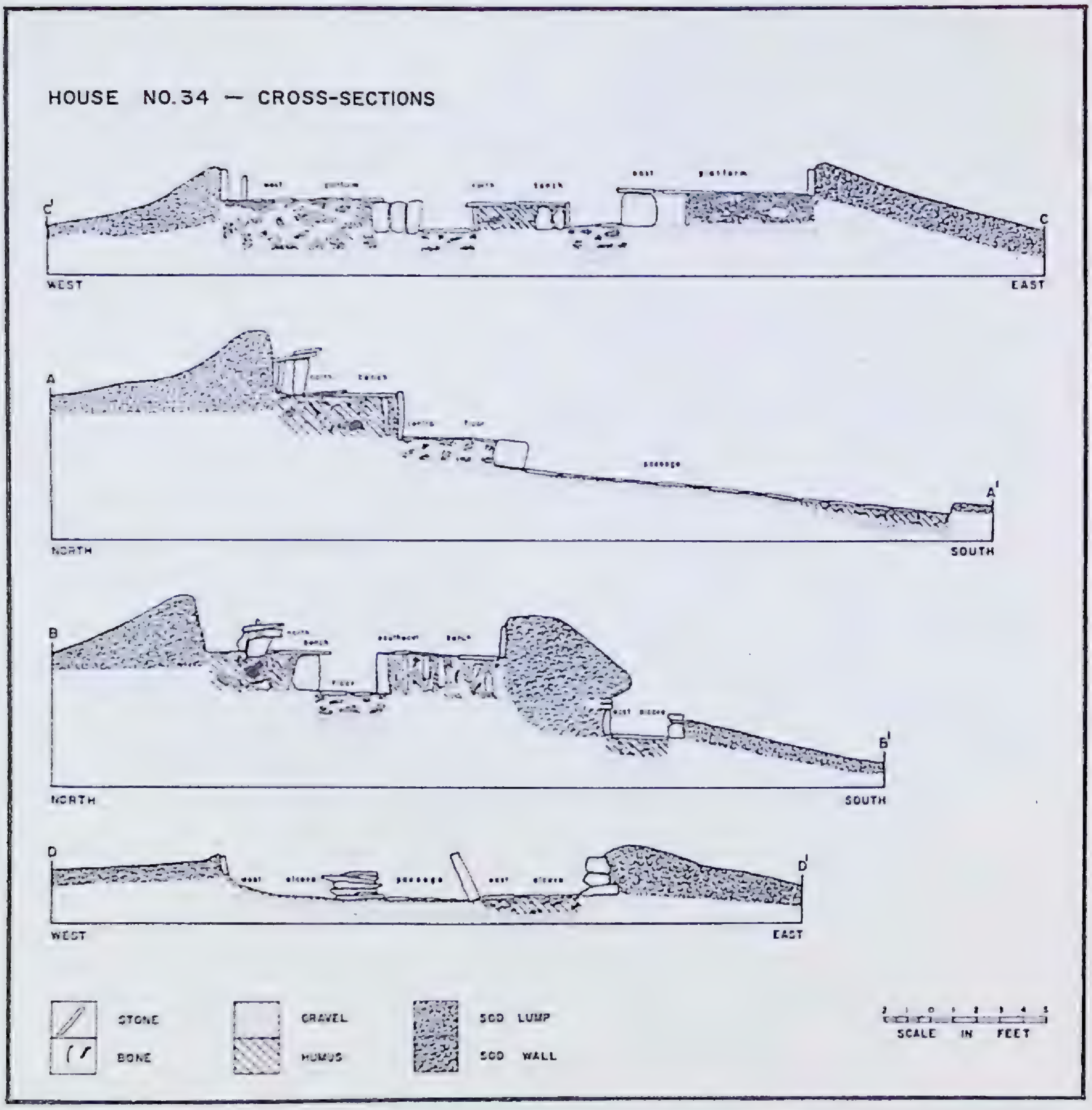

Figure 2. House 34. Cross-sections.

boulders rarely occurred. Supports of coursed horizontal stones appeared several times, although Thule culture houses show this technique more abundantly. There was some evidence of short whalebone verticals being set on the platform surface for roof support. The marginally-arranged Coats verticals, however, were characteristically set, not on the platform, but in the fill under the platform or bench. There was also abundant evidence of the use of caribou antlers as roof framework. Vertical limestone slabs set on or in the floor served variously as supports, facings, and rubble retainers for benches and platforms. The house contained the following structural components: passage, central floor, west room and platform, east room and platform, north bench and roof remnant, southeast bench, southwest bench, east alcove, west alcove, north inset, east inset, south inset, two floor-level storage bins, and a secondary wall. The following paragraphs treat these features or components individually and in detail.

The fill over the passage floor varied from 6 inches at the south end of the passage to 4 feet, where it intersected the house walls. This overburden was a mixture of humus and sod with an abundance of stone slabs and a few boulders. The artifacts found in this debris were generally Sadlermiut types, except for three Cape Dorset culture specimens: a retouched micro blade; a small, biface, ovate side blade; and a concave-based, triangular, biface, harpoon end blade. Two feet south of the threshold stone were fragments of two wooden kitchen matches, frozen in sod at a height of 8 inches above the passage floor. These were adjacent to a human skull (Skull 5), resting at the same elevation. The passage sides north of the alcoves were made up largely of the sod of the south wall of the house with some use of vertical stone slabs set parallel to the passage length. On the east wall of the passage, there was one instance of limestone slabs coursed over and resting on a vertical support stone. This technique of stones coursed over a vertical support was noticed many times in examining the passages of other houses on the site. The irregularly scattered flagstones in the southern part of the passageway rested on a 6- to 8-inch-thick layer of black humus or, when thawed, muck. This layer thinned rapidly to the north and rested on very clean, fine-textured gravel, which presumably was undisturbed. The thick black humus layer was rich in artifacts and animal bones.

The abundant stone and sod fill in the north part of the passage, the thin overburden in the south part, the smaller and less carefully placed flags south of the alcoves, and the thick midden deposit under these flags all combined to indicate that (a) a passage roof reached to the south walls of the alcoves, and that (b), south of the passage proper, a midden accumulated which was eventually flagged over to provide dry footing in mild wet weather. North of this midden accumulation, the humus layer under the flags thinned rapidly as noted above, so that under the flagstones of the passage proper there is only a discontinuous layer of humus, one-half to one inch thick. It rests on clean, fine gravel, which is construed as the undisturbed hill surface. It suggests, along with the humus trace, that the passage floor was laid directly on the original ground surface.

The east alcove was filled in with black humus that contained many artifacts, an abundance of animal bone, and a few stone slabs. It was topped with the dense moss-grass vegetation that occurs all around the ruin. The most notable quality during excavation of this feature was its concentration of animal bone, notably of caribou. In a single day the refuse from this alcove included 272 mammal bones, of which 92 per cent were caribou. Of the 252 caribou bones identified, 162 were ribs or rib fragments. The well-flagged floor of this alcove was slightly above passage floor level, and the alcove entrance had been blocked off by a single large limestone slab set vertically across it. The north wall of the alcove had slabs of stone coursed over vertical stones that stood flat against the moss sod backing. The moss sod house wall overhung this stone work. The alcove's east and south walls, which consisted of a few coursed limestone slabs and boulders, were quite low and were set in moss sods. Humus containing bones and artifacts reached a maximum depth below floor stones of 8 inches and rested on the undisturbed clean, fine-textured gravel.

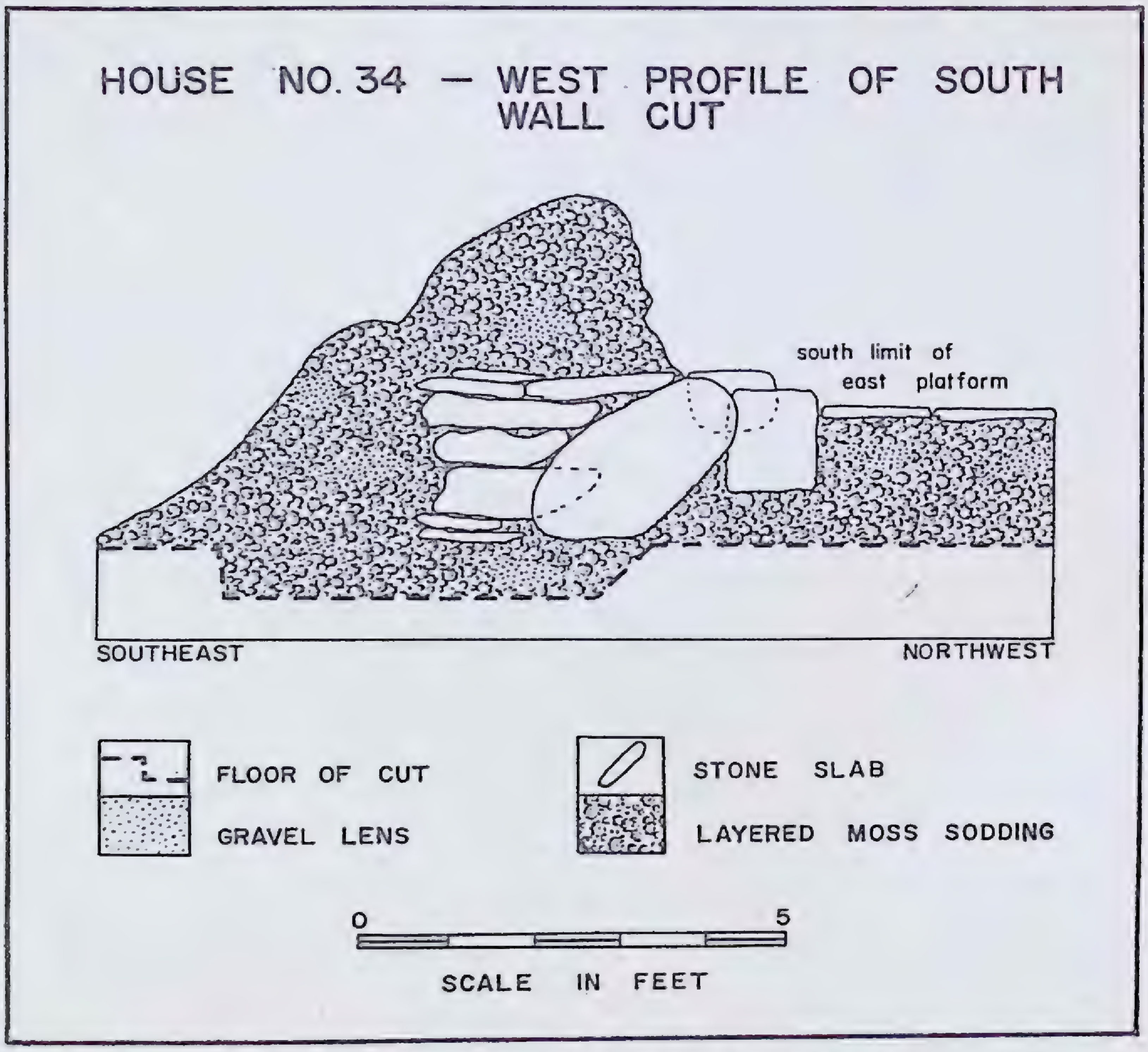

Figure 3. House 34. West profile of south wall cut.

The west alcove was a much more indefinite feature. The fill was a layer, 12 to 19 inches thick, of tough moss sods followed by a mixed layer of black humus, gravel, and moss sods that rested on clean, fine-textured gravel. If the juncture of this clean gravel with the mixed second layer be taken as the west alcove floor, then the alcove floor was 3 inches below the adjacent passage floor. The fill thickness above this juncture was variable, between 12 and 30 inches. Several stone slabs were found in this fill, but bones and artifacts were rare. Caribou bones were not notably abundant. Prominent, however, were five walrus skulls that seem to have been incorporated as part of the alcove walls. The walls generally were of sod with a few stone horizontals. A mass of slab stones covered the juncture of this alcove with the passage. The only notable artifacts were a hinged metal lid, found in the sod at a depth of 3 inches, and close by, a scraper made from the scapula of a seal.

The floor of the house interior was neatly laid with limestone flags, terminated at the south in a massive single block, which was the threshold stone. The floor area was bordered by vertical stones that constituted the faces of platform and bench features. The nature of the debris over the floor prior to excavation has been described above. First, 60 stones in a tumbled mass were removed, and Sadlermiut and recent artifacts were recovered from the surface. Plotted and also removed was a random scatter of human bones that included a mandible and several ribs, phalanges, limb bones, and vertebrae. Partly buried caribou antlers were abundant in the rock debris. The debris over the eastern half of the floor area was a jumble of rock slabs and antlers with interstices filled with black humus. Moss sodding was very rare. The area between the threshold stone and the north bench was filled by a patterned fall of 23 limestone slabs that rested over the floor, almost vertically, but tilted back to the west (Plate I, fig. C). Much of the human skeletal material noted above was found between these slabs. This pattern clearly suggests a fallen wall of horizontally coursed stone slabs. They rested on caribou antlers and a 3-inch layer of black humus that covered the floor stones. Three antlers were completely covered by these fallen stones, and other antlers were partly covered. After this rock fall was removed, it was found to have rested against a crudely coursed wall of limestone slabs that extended north-northeast to south-southwest, beginning on the northwest corner of the north bench and ending on the east end of the southwest bench (Plate I, fig. A). Thus it was set back about one foot west of the west wall of the passage and continued that wall to join the north wall of the house. This secondary stone wall across the house was reinforced on its northwest or exterior face by a moss sod outer wall (Plate I, fig. B). This secondary wall with its sod backing reached a maximum height above floor-level of 40 inches, and it was 19 inches above the flags of the north bench. The situation outlined strongly indicates that the 23 fallen slabs had originally been the upper courses of the secondary wall. Edge measurements of these fallen slabs suggest an additional wall height of at least 18 inches. Thus a total height above the central floor for this wall may have been on the order of 58 inches, or roughly, 5 feet. This wall and the contrasts in the debris over the east and west sleeping platforms, to be described later, suggest a different history for the two rooms of the house. The marked differences in matrix, content, and architecture between the two storage alcoves might support this suggestion. I would seem that House 34 began as a two-room structure, that the west room was later abandoned, and that a secondary wall of coursed stones backed by moss sods was built to separate the abandoned section. Thus in its final stage, House 34 was a large one-room structure. In the 1956 work, the secondary wall is the only instance found of extensive use of coursed horizontal stone walls.

After mapping, the secondary wall was removed, revealing the original floor as it appears in the plan of House 34 (Figure 1). The western section of the floor was distinctive in that it was blubber-stained and the fill

PLATE I

Fig. A. (Top) House 34. Secondary wall extending from southwest bench to north bench. Looking west with west room in background.

Fig. B. (Left) House 34. Moss-sod backing against outer surface of secondary wall. Looking east-southeast.

Fig. C. (Right) House 34. Patterned rock fall over central floor and against inner surface of secondary wall. Survey pins indicate positions of human skeletal material. Looking south-southwest.

PLATE I

A

B

C

immediately above it was blubber-stained and stinking. On the northwest corner of this floor lay an abundance of feathers, dung, and bear fur. One of the rare occurrences of baleen, a fragment of net or drying rack, was found here.

The central floor area debris included 50 antlers, while the fill over the eastern side of the floor contained at least 15. Four others were noticed pressed against the floor by the lowest slabs of the secondary wall at the west end of the floor. None of these antlers was exceptionally large, but taken together they represent an impressive quantity of what must have been roof support or framework material. One is reminded of House ruin III at Kuk, from which Mathiassen recorded 12 antlers and fragments (1927, Part I, p. 228). Also in the debris over the floor were nine pieces of whalebone. Although most of these were very short, one measured 30 inches.

Artifacts were randomly scattered through the debris over the floor area and were markedly more frequent in the 2 inches immediately above the flagstones. A typical Sadlermiut limestone lamp (Mathiassen, 1927, Part I, Fig. 77 a, b) with built-up sides was found inverted and resting on the floor directly against the east face of the secondary wall. On the central floor two textile fragments were found (artifact numbers KkHh-1-623 and 624). These were of willow root or bark, a loose plain weave in a Z-twist, clockwise, one-ply yarn, over-one and under-one[1]. These may be remnants of a loose basket or bag. A similar fragment of textile, less well-preserved (artifact number KkHh-1-9), occurred in the debris that lay over the entrance passage. The only example of ground slate found in 1956 was a fragment of lanceolate blade (artifact number KkHh-1-628) that rested on the central floor. Two wooden kitchen matches (artifact number KkHh-1-654) were found frozen in black humus, 3 inches above the floor. They had been but little burned, like the ones in the passage, and very likely were deposited before the house collapsed.

The material under the floor stones, for at least 11 inches, was coarse gravel and moss clods containing 66 artifacts. This fill rested on clean, fine gravel. The threshold stone, a massive metamorphic block, rested on a thin black humus layer from one-half to one inch thick. This humus layer, which included a very few animal bones, rested on clean, fine gravel. Thus it seems that the threshold stone, like the passage floor, was set on original ground level and the floor area was filled in with sods and gravel to support floor flagstones level with the top of the threshold stone.

The area of the house floor was quite small, but extending from it at the same level were features, neatly flagged, to which we have given the term "insets." The 1956 work suggests these are typical of Sadlermiut houses, and in House 34 there were three such insets, which are referred to as the north, the east, and the south insets. These features are rectangular in plan, bordered by vertical stone slabs, and separate, albeit incompletely, the sleeping platforms from the bench features. Resting on the debris in the south inset, and level with the surface of the southeast bench, was a typical Sadlermiut lamp. It consisted of a semi-lunate limestone slab, rudely chipped to shape and measuring 3 inches thick, 12 inches wide, and 24 inches long. Part of the thin limestone slab rim and some paste still adhered to it. In the fill of the south inset and 8 inches above floor-level, a broken rectangular sandstone cooking vessel was found (artifact number KkHh-1-402). Mathiassen illustrates a side from a similar vessel found at Kuk (1927, Part I, Plate 67, Fig. 12). It had been made by lashing carefully finished, thin limestone slabs together. It measured from five-sixteenths to seven-sixteenths of an inch in thickness. Its base measurements were $3\frac{3}{4}$ inches by $5\frac{5}{8}$ inches. The sides are $2\frac{1}{4}$ to $2\frac{9}{16}$ inches high. Its rim measurements were $4\frac{1}{4}$ inches by $6\frac{1}{8}$ inches. Two holes have been drilled, one-quarter inch below the rim on each of the longer sides, presumably for suspension. At the end of each side-piece a hole had been drilled for lashings that held the four sides together. No lashings were used for the base. It was secured by a shallow groove cut into each of the side-pieces one-eighth inch above their lower edges. Remnants of crust on the fragments indicate that the seams had been sealed by a paste. In the fill, along with this vessel, was a small complete lamp. It measured approximately 9 inches long and 5 inches deep. Unfortunately, no other measurements were taken on this specimen. The fill in this inset was a mixture of gravel, humus, moss sods, and bits of stone slabs. Many animal bones were found, including 20 caribou scapulae and 18 caribou ribs but no caribou vertebrae.

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[1] The writer is indebted to Dr. R. S. MacNeish, Human History Branch, National Museum of Canada, for making this identification.

The east inset separated the north bench from the east sleeping platform. The flagstone floor of this inset had a thick, flaky, black crust. This kind of stain is usually attributed to drippings from a seal-oil lamp and quite duplicates the crust often found on such lamps.

The north inset separated the north bench from the west sleeping platform. It had been covered by the secondary wall so that very little fill was in it. It did contain some bear fur-tufts and a few feathers, and was generously smeared and stained with blubber. A large complete Sadlermiut lamp lay inverted in this inset. This lamp was 2 feet long and had a rim built up to $4\frac{1}{2}$ inches. This distribution of three lamps, a vessel, and a lamp stain in three alcoves indicates that the insets functioned as lamp positions. Similar evidence will be presented from House 49.

House 34 had three benches of nondescript form but of general similarity in construction. The well-flagged horizontal surface was supported by vertical slabs and boulders set in a fill of gravel, humus, and moss clods. This fill usually contained animal bones and artifacts. The fill under the benches was retained by vertical slabs resting at floor level and often serving as well to support the edges of bench flagstones. The bench surfaces supported limestone verticals that served as facings for the sod walls of the house. They also supported or incorporated the bases of Coats verticals. These verticals and the roof remnant they supported over the north bench indicate that benches, like platforms, were an integral part of the roof support system (Plate III, fig. B, C).

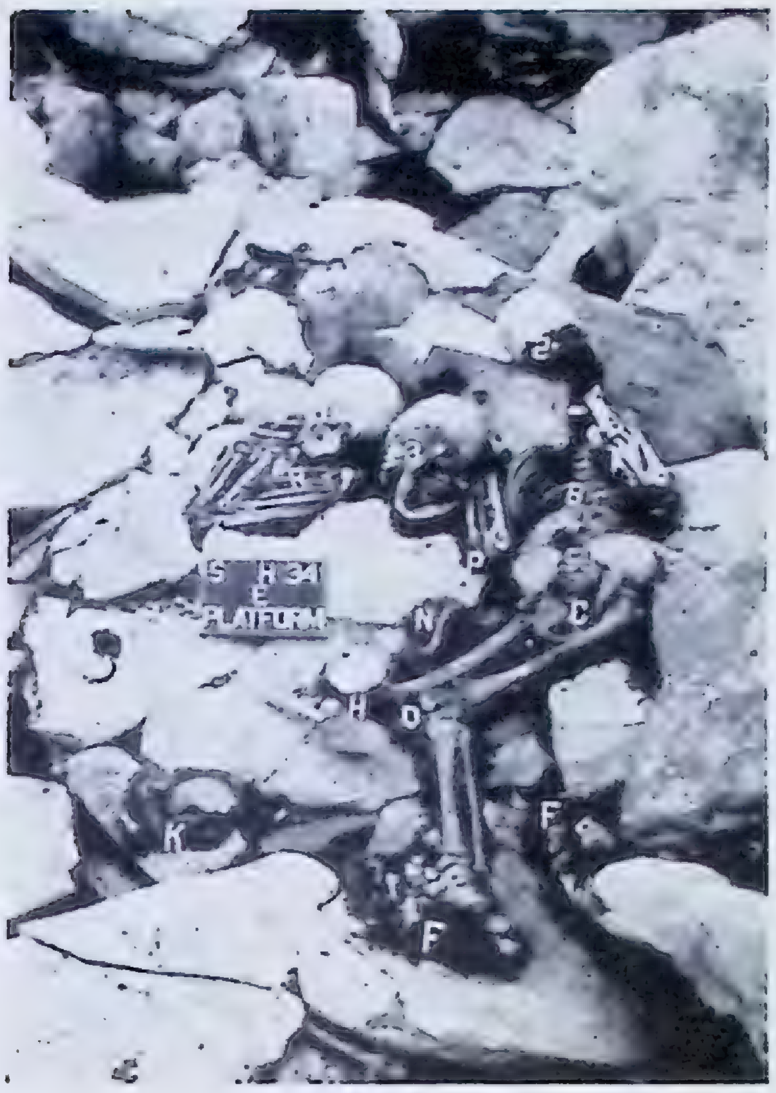
There was almost no debris over the north bench, and resting upon it was the already-mentioned Skull I. The fill under this bench included three walrus skulls, a few human bones, and a Cape Dorset culture harpoon head (artifact number KkHh-1-397). This artifact was very distinctive in that it was in a very poor state of preservation. Thirty-seven other artifacts, all of Sadlermiut types, were found under this bench. The southeast bench supported more debris than the north bench, but still it was only a scant cover. There was a little rock debris and a thin layer of loose dirt and gravel topped by a weak moss vegetation. The fill under this bench included seven vertical stone slabs. Only five artifacts were found on the bench,

Plate II

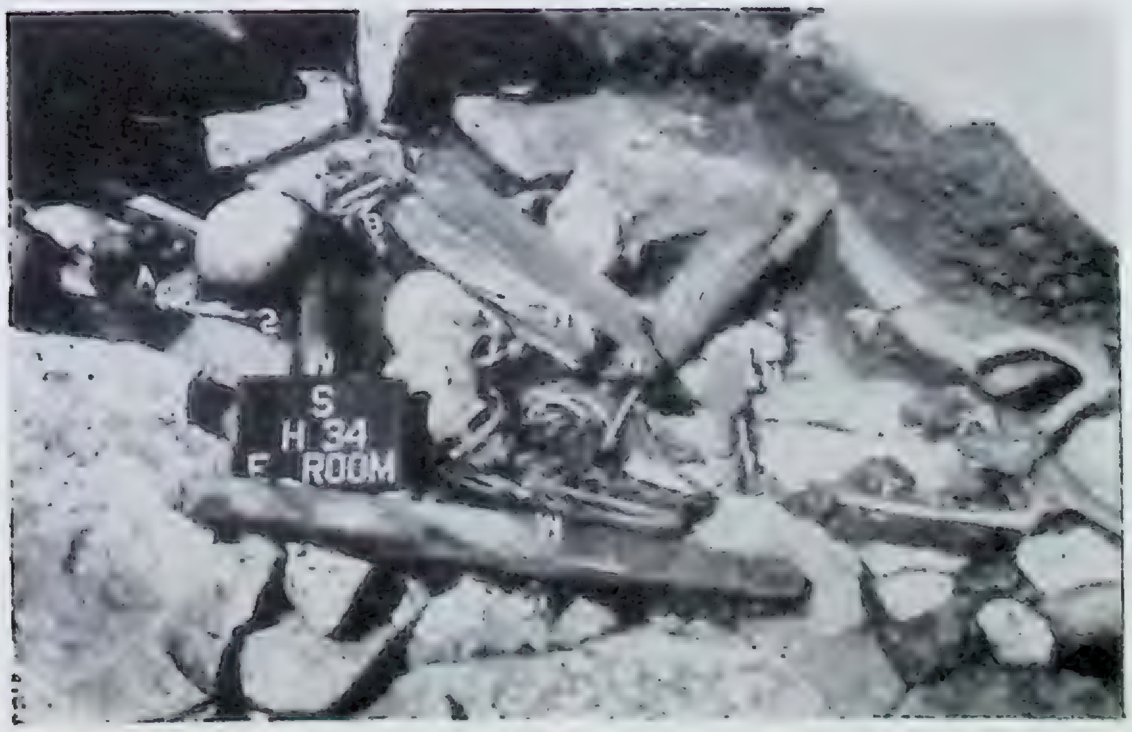
Fig. A. (Top) House 34. Skeletal material on the east platform. Looking southwest.

Fig. B. (Bottom) House 34. Five sections of whalebone, marked "W" associated skulls 2, 3, and 4, and artifact cache, "A," looking north.

PLATE II



A



B

but 50 occurred in the underlying fill. The southwest bench was partly covered by the southern end of the secondary wall and in large part by the dense moss sod that backed this wall on its northwest side and reached a thickness of 2 feet over the bench. The fill under this bench included a huge boulder and a single pillar of coursed limestone. Only 13 artifacts were found over the southwest bench and only seven beneath its flagstones.

The debris over the east sleeping platform varied from 4 to 12 inches and consisted of moss sods and humus mixed, several stone slabs, a few antlers, and 5 pieces of whalebone. Animal bone and artifacts were abundant in the debris. Beneath it was a platform mattress of mixed willow and sphagnum moss with occasional lenses of coarse sand (note Mathiassen, 1927, Part I, p. 269). Its maximum thickness was 2 inches. The well-flagged platform was supported in large part by a fill of layered moss sods and gravel lenses. This fill, in which a few vertical stone slabs, animal bones, and 35 artifacts occurred, extended to a depth of at least 16 inches below the platform flags. At this depth permafrost prevented deeper digging. Set in the fill was a row of vertical stones oriented roughly northeast-southwest and extending from the rear to the leading edge of the platform. Approximately 30 inches northeast of the leading edge of the platform, this first row of vertical stones was intersected by a second row of stone vertical and coursed horizontal stones. The second row met the first at almost a right angle. Southwest of this second support wall beneath the platform surface, there was no fill material, so that two storage bins were effected at floor level and directly below the front of the sleeping platform. Each bin was about 15 inches high, 30 inches long, and 27 inches across the front. The more northerly of the two contained a large lens of clear ice. The sparse loose debris in these bins yielded 131 artifacts including a cluster of 76 perforated Arctic fox metatarsals. These fox bones may have been worn as a parka ornament (Jenness, 1946, p. 49, Fig. 39). Also in this bin debris were several human metacarpals.

Three human skulls with articulated mandibles rested on the platform mattress of the northwest corner of the east platform under considerable debris (Plate II, fig. A, B). These are referred to as Skulls 2, 3, and 4. Skull 2 was of an adolescent with a reasonably complete and partially articulated skeleton extending toward the northeast corner of the platform. Skull 3, an adult, had only four cervicle vertebrae in association. Skull 4 was of a pre-adolescent and associated with it in partial articulation were the bones of the right arm, rib cage, and shoulder girdle. Scattered remains of a young person found elsewhere on the east platform likely belong with Skull 4. Four inches northwest of Skull 2 was a cache of 23 artifacts, which included four harpoon heads, a snow-knife blade, and seven stylized ivory bird figurines or gaming pieces (artifact numbers: harpoons, KkHh-1-144; snow-knife blade, KkHh-1-145; ivory bird figurines, KkHh-1-149).

Presumably these skeletons on the sleeping platform represent three of the last Sadlermiut who died of the epidemic that destroyed their band. Further, they indicate that House 34 was one of the last occupied Sadlermiut houses.

Also on the north half of the east sleeping platform was found one of the rare examples in our work of the use of whalebone in house-building (Plate II, fig. B). The first of five lengths of whalebone lay immediately south of Skull 4 on the mattress material and oriented east-west. It was

32 inches long, carefully shaped, and rectangular in cross-section. Its eastern tip lay at the approximate centre of the platform. It seems reasonable to conclude that this whalebone had served as a central roof support. If so, its length suggests the maximum height of the roof over the east platform. Between Skulls 2 and 3 was a thick, 21-inch-long fragment of whalebone, oriented roughly north-south. Partly covering Skull 3 and the rib cage of Skull 2 was a 2-foot length of whalebone, oriented northwest-southeast. Immediately adjacent and parallel to it was a fourth whalebone fragment. It was 27 inches long and rested over skeletal material. The fifth whalebone measured 32 inches, was oriented northeast-southwest, and rested over skeletal material, with its southernmost tip one foot east of Skull 3. These irregularly-shaped pieces of whalebone very likely had fallen in from the northern edge of the platform where, it seems, they stood as marginal vertical supports for the roof over the east platform.

The stone verticals found *in situ* indicate that the side walls of the east room were straight and that the rear wall was slightly concave. Of slabs, set into the fill of the platform as Coats vertical stones, nine were found *in situ*. The four tallest of these reached heights of 20, 23, 25, and 27 inches respectively, above the platform. It has already been suggested that Coats verticals served not only as storage cubicle sides but as peripheral roof supports. If so, these height measurements and the lengths of the fallen whalebones, as recorded above, suggest a low roof over the east platform, rising slightly to a centre support post.

A final comment on this east room concerns the fill over the platform and its implications for roofing. The debris was abundant around the margins of the room but thinner in the centre. In fact, thickness of more than 6 inches was rare except in the northeast corner and extreme margins. Further, and in contrast to the passage and floor areas' debris, antler and stone slabs that could be construed as roofing were rare. There was hardly sufficient debris in the room to postulate a stone and sod roof over an antler framework, supported by verticals of stone and whalebone. Such is what one might expect however. Nor can we offer greater evidence for an alternative possibility, to wit, an incurving wall of sods over slabs supported by stone and whalebone verticals with a central gap covered by walrus, bearded seal, or some other animal skin. This problem of roofing will be discussed further in connection with House 49.

As suggested earlier, the debris in the west room of House 34 differed somewhat from that of the east room. The top layer was a tough mixture of dense sphagnum moss sod overgrown with grass. This layer varied in thickness, seldom exceeding 2 inches near the northwest wall, averaging 8 inches in the room centre, and reaching 24 inches along the southeast side of the room where it was built up as backing for the secondary wall. This layer contained very little humus. In this sod layer in the central area of the west room, animal bone was very abundant, notably seal and walrus. Also in this bone concentration and at depths of from 2 to 4 inches were a human radius, ulna, humerus, rib, lumbar vertebra, and a "pocket" of 14 human teeth. These human bones were not closely associated with each other. The bottom 3 inches of this sod layer yielded neither bones nor artifacts.

Beneath the first or sod layer was a thin black stratum of dried moss and willow, which is interpreted as the platform mattress. It varied from 1

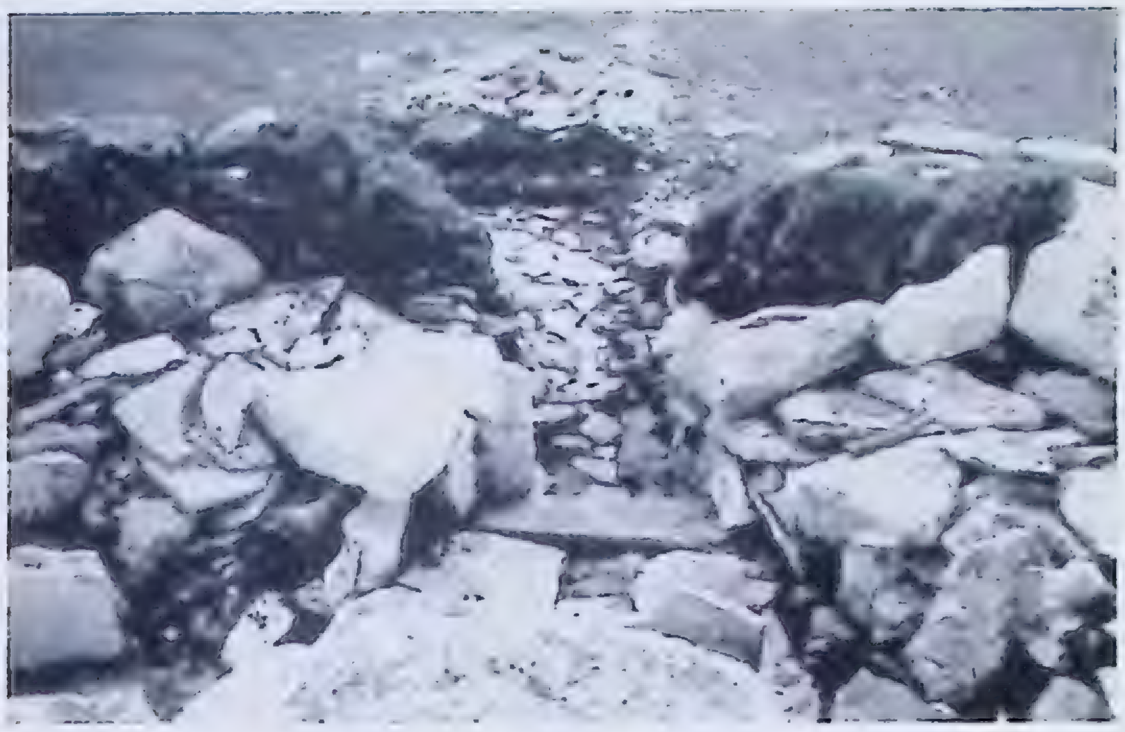
PLATE III

Fig. A. (Top) House 34. Entrance passage. Looking south.

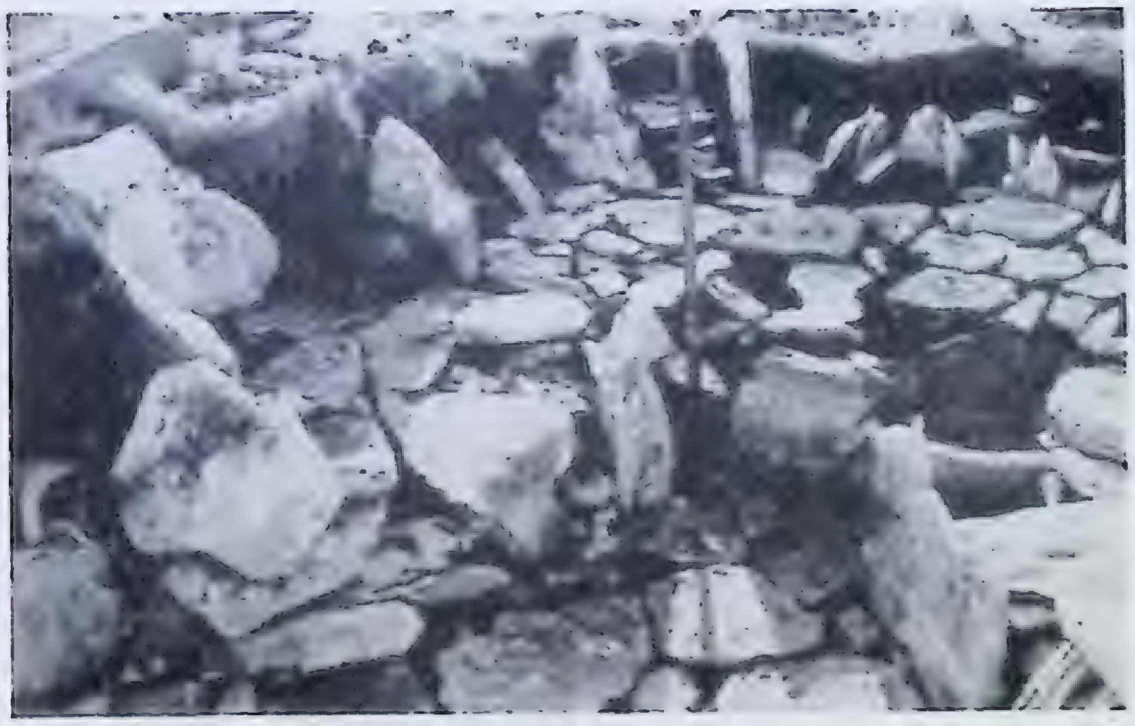
Fig. B. (Centre) House 34. West room and southwest bench. Showing Coats verticals projecting from sod walls. House floor in foreground. Looking west-northwest.

Fig. C. (Bottom) House 34. North bench and roof remnant. "L" is lamp base resting in the north inset. East room in the background. Looking northeast.

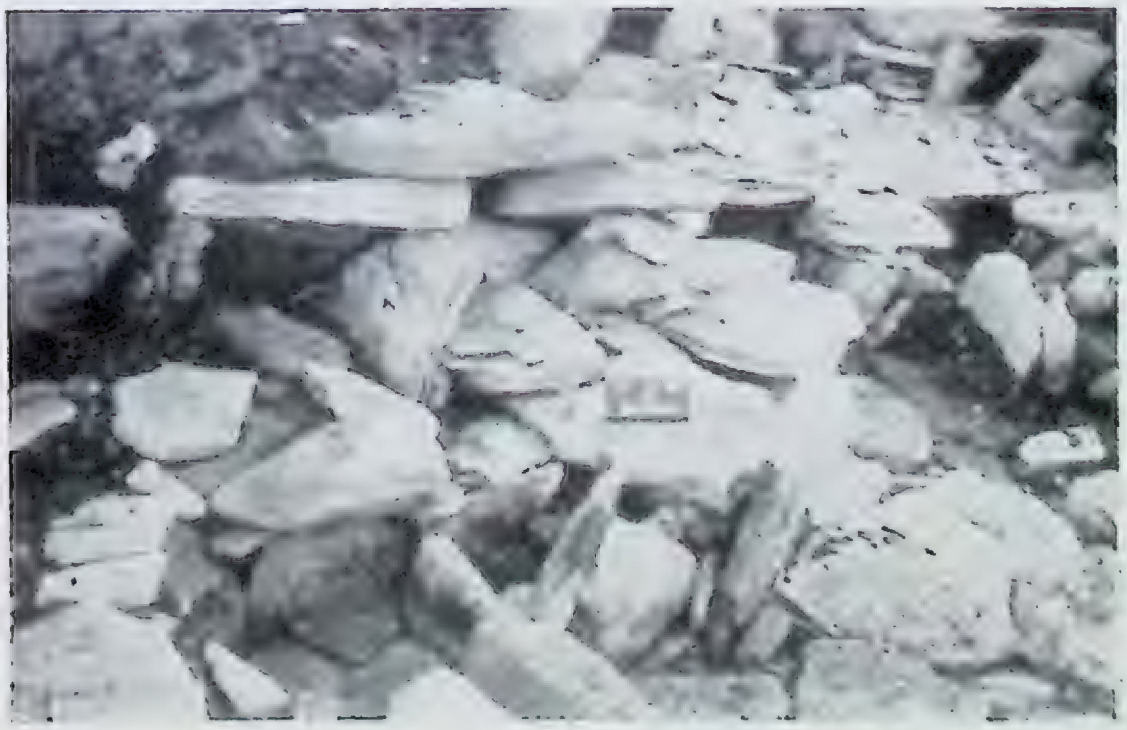
PLATE III



A



B



C

to 2 inches thick. It rested on a rather poorly flagged surface of limestone slabs. These slabs, in turn, were supported by a fill of medium-textured gravel incorporating some moss clods and humus. This fill extended from 6 to 8 inches below the level of the house floor where fine, clean gravel occurred. A few vertical stone supports had been placed under the southeast edge of the platform. As in the east room, the side walls were straight and the rear wall was slightly concave. The system of Coats verticals and vertical slabs set against the sod face of the room walls duplicated that described for the east room.

Fallen roof stones, antlers, and whalebone were exceedingly rare in this room. Indeed, the only prominent debris was the moss sod and its content of animal bones and approximately 150 artifacts. Excavation produced no concrete evidence of skin-roofing, although such might well have been preserved in a site of this nature. However, the west room was abandoned some time before the rest of the house, and very likely its roofing material. excepting sod, was used elsewhere. The animal bone in the west room may be summarized as a bone-laden lens in the vertical and horizontal middle of the sod debris. Likely it represents a midden that accumulated after the room was abandoned. However, the excavation did not show the abundant humus usually associated with a midden matrix.

A cut, 30 inches by 35 inches, was made in the outer side of the moss sod wall that formed the rear or northwest wall of the west room. As thawing permitted, this was dug down in order to study the content of the wall. By the end of the season, it had been extended to a depth of 30 inches, well below the level of the adjacent west sleeping platform. It was throughout a solidly-packed matrix of sphagnum moss sods. Humus and gravel occurred in trace quantities. A few animal bones and artifacts were found in the top 8 inches. A single vertical stone slab projected into the face of the cut from the southeast or platform side.

A second wall cut, 42 inches by 60 inches, was excavated in the centre of the southeast wall of the east room (Plate IV, fig. A). It was extended, as thawing permitted, to a maximum depth of 5 feet. Again, the matrix was solidly-packed sphagnum moss sods, and it included, rarely, small lenses of fine gravel. A very few animal bones and Cape Dorset culture artifacts were found in this matrix. More significant was an intentionally placed concentration of stone slabs within the sod wall. Eight limestone slabs were coursed horizontally, rather like a pillar (Figure 3). These were supported by the moss matrix and also by a ninth stone, a large vertical slab on which some of the horizontal stones rested. The vertical stone projected slightly into the extreme margin of the east room. Most of this stone concentration was below the level of the east sleeping platform surface.

Because of this stone work buried within the sod wall, further wall exploration was undertaken at the close of the season. The sod mass that formed the bulk of the east side of the entrance passage was extended eastward 3 feet. However, no additional stone work was found. The whole volume was of packed moss sods with traces of gravel and humus. Again a few animal bones and flint flakes were found. One biface triangular, concave-based harpoon endblade of Cape Dorset culture type occurred in this sod material (artifact number KkHh-1-233). Perhaps the most striking property of this house is its generous use of massive sod walls as exposed in these wall cuts.

The final element of House 34 to be described is the roof remnant found *in situ* over the north bench. It is somewhat depicted in the plan and cross-section diagrams of this house (Figures 1, 2). It consisted of three very large limestone slabs that slope downward from south to north. The largest slab rested on the other two. The northern edges of two of these roof stones were embedded in the packed moss sod of the north wall which, along with a vertical slab set against the sod wall, helped to support them. The higher, southern edges of this roof remnant were supported by vertical stones (of the type called Coats verticals) and, on the eastern side, by a whale vertebra 'set on an angular boulder. A similar roof remnant supported on Coats verticals and standing over a bench between two rooms was found by Collins' 1954 party when excavating a Sadlermiut site on the north coast of Coats Island (Collins, 1957b, Plate XIII, Fig. B).

## House 49

This was a large, well-preserved one-room house with part of its passage roof intact. The principal elements of this house were two storage alcoves, two side benches, two insets, a sleeping platform, a passage, a central floor, and an extensive, encompassing sod wall. At its southwest corner, House 49 was joined to another, but older, ruin. House 49 is oriented north toward the ocean, some 300 yards away, and toward another cluster of house ruins some 60 yards distant. This house faced downhill on a slightly rising slope. The debris in the house included many stone slabs and an abundant vegetation supported by moss clods and some humus. There was less debris over that platform whose north, or leading, edge was quite visible prior to excavation. In general, comparing it to House 34, House 49 was a smaller, less ambitious structure, containing less debris, fewer bones and artifacts, and was much easier to excavate.

Over the southern half of the passage was a thick jumble of rock, sod, and humus debris, which appeared to have collapsed in recent decades. The passage floor had limestone flags from the threshold to the southern limit of the alcoves. North of this, it was generally a gravel surface that seemed to represent the original gravel surface of the hillside. The flags of the passage rested on fine, clean gravel. In its southern section the passage floor has been levelled by cutting down into this otherwise undisturbed layer. Vertical stone slabs set against the passage wall retained this gravel and the moss sod of the north house wall that lay over it. The passage walls consisted of these retaining verticals and three rows of horizontal, coursed limestone slabs supported by the retaining verticals. Pillars of coursed stones also were used in the passage walls. These wall stones served to support the large flat stone slabs that formed the ceiling of the passage. One such ceiling stone was found *in situ* and embedded in dense moss sodding that extended across the passage roof as a continuation of the north wall. The absence of flooring stones,

PLATE IV

Fig. A. (Top) House 34. South wall cut. Looking north into east room.

Fig. B. (Centre) House 34. East alcove. Looking west-northwest.

Fig. C. (Bottom) House 49. Sleeping platform and central floor after excavation. Looking southeast.

PLATE IV

A

B

C

wall remnant, and roof debris north of the south limit of the alcoves is strong indication that the passage of House 49 was not extended north of that line. Twenty-one routine Sadlermiut artifacts were found scattered on the passage floor. While animal bone was not markedly abundant in the passage debris, it did include three walrus skulls and 14 walrus mandibles.

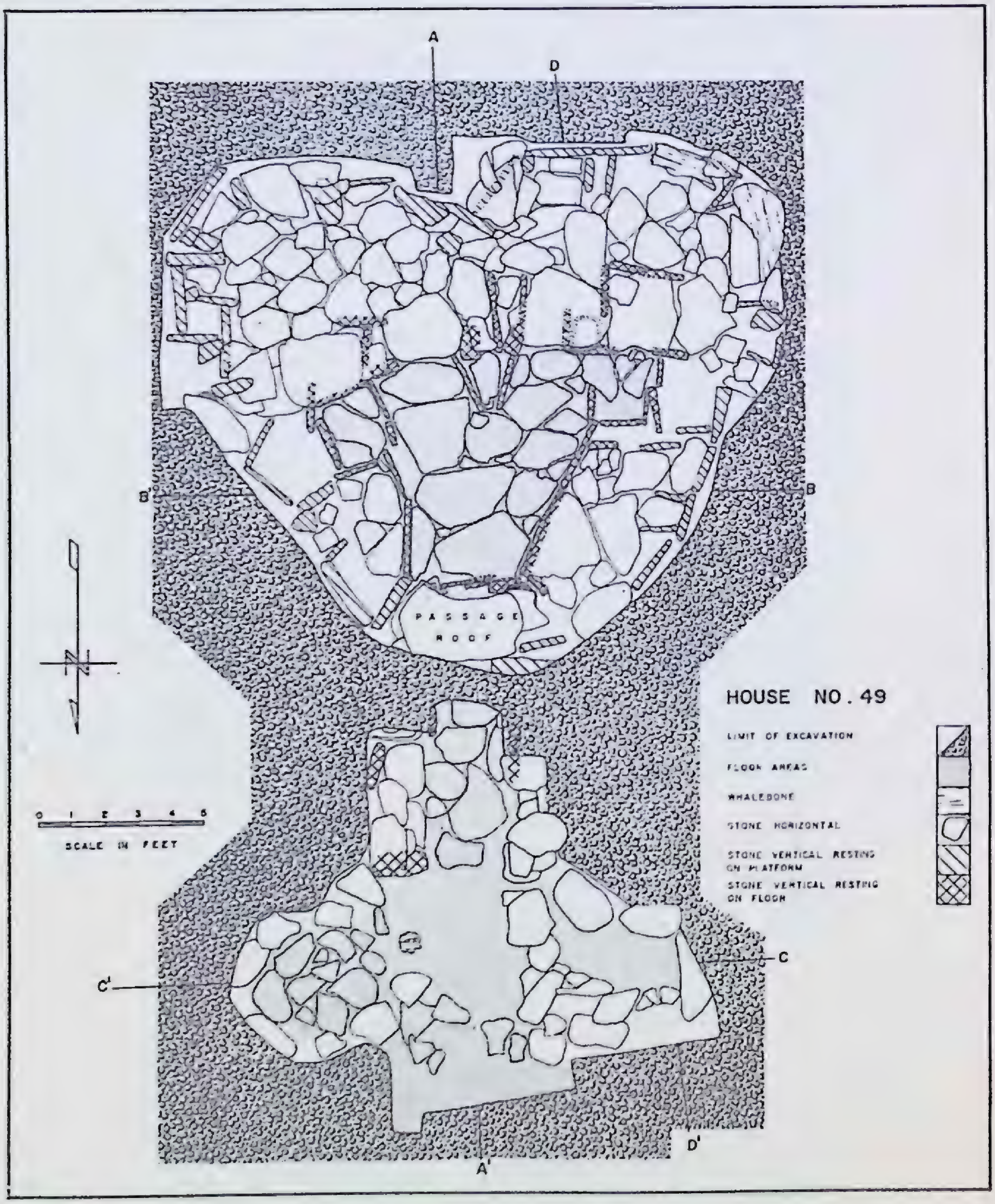


Figure 4. House 49. Plan map.

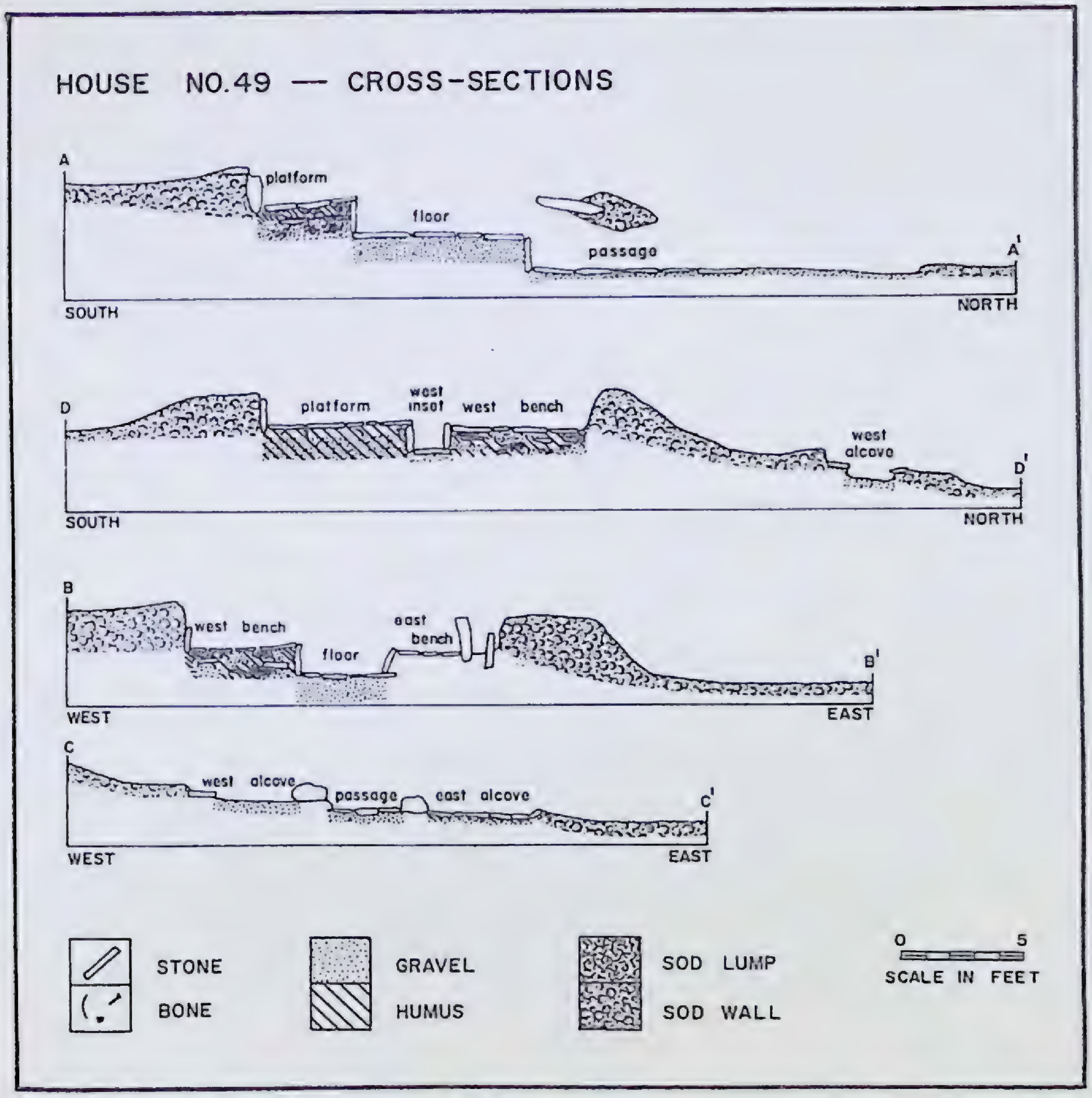


Figure 5. House 49. Cross-sections.

The two alcoves of House 49 stood opposite one another at the outer limit of the passage. They were much less ambitious features than their House 34 counterparts. They showed an incomplete and very simple wall of limestones with a low sod backing. The west alcove rested on undisturbed gravel slightly higher than the adjacent entry-way floor. However, the east alcove had a neatly flagged floor slightly lower than entry level (Plate V, fig. C). Further, this flagged floor rested on humus mixed with gravel. These alcoves had a minimal overburden of a 2-inch thickness of humus. Few bones and only 12 artifacts were found in the two alcoves.

Plate V

Fig. A. (Top) House 49. House interior prior to excavation. Looking north-northeast to passage exit.

Fig. B. (Centre) House 49. House interior after excavation. Looking northwesterly to passage exit.

Fig. C. (Bottom) House 49. East alcove and entrance passage after excavation. Looking south-southwest.

A

B

C

The debris over the central floor of House 49 (Plate V, fig. A) was a tightly-packed layer of sphagnum moss clods, which was 16 inches thick in the centre of the floor and sloped down to 10 inches at the margins. It incorporated only traces of humus and gravel. Fourteen walrus skulls and many stone slabs were embedded in the top of this deposit. Resting on the floor stones and extending up into the moss deposit were 34 antlers and six pieces of whalebone. The latter ranged in length from 18 to 35 inches. The floor was carefully flagged with limestone slabs (Plate V, fig. B). Thirty-four artifacts were found in the moss sod layer. Except for those visible in the top of the deposit, very few stones and animal bones were noted. There were 56 artifacts resting on or immediately above the central floor. These included a chert end blade of Cape Dorset culture (specimen number KkHh-1-776). In the southwest corner of the floor there lay a broken rectangular limestone cooking pot and a broken limestone lamp (specimen number KkHh-1-782). Excavation under this floor was halted by permafrost at a depth of 12 inches. The matrix under the floor stones was a sterile, unstained, yellow sandy gravel suggesting no disturbance.

The side benches extended from the threshold to the fore-edge of the sleeping platform where they were indented by two insets. The benches and insets were carefully faced by vertical limestones. These slabs served to retain the fill under the bench surfaces which consisted of a built-up deposit of gravel, humus, and moss chunks. The fill of the west bench incorporated ten horizontal stone slabs. The benches were surfaced by poorly-fitted flags resting on the fill. Coats verticals, standing at the back of the benches, extended down into the fill to a point level with the central floor. The scanty debris over the benches rarely exceeded 2 inches in thickness and contained very few stones, bones, or artifacts. It was predominantly a loose mixture of dirt and gravel.

A broken stone lamp found in the east inset adds to the suggestion that these well-made features constituted lamp positions. This house very likely boasted a third lamp position, for two vertical slabs standing on the floor form a "V" opening to and touching the centre of the front edge of the sleeping platform. The broken vessel and first stone lamp found on the central floor were immediately west of this feature.

The sleeping platform extended across the back of this heart-shaped room and was an extensive, well-flagged surface. It was generally quite horizontal, except at its front centre point where the flagstones were tilted up to form a crest. This and the very pronounced indentation of the south wall indicate that the platform should be construed as bilobate or as a partly separated pair of sleeping surfaces, rather than as a single huge sleeping area. The leading edge of the platform was visible prior to excavation. The debris over the western half of the platform consisted of an abundance of large rock slabs on and embedded in a layer of moss sods that averaged 4 inches in thickness. Under this and directly on the platform slabs lay a very thin black layer of dried arctic vegetation. Although this layer seemed to contain no willow and very little moss, it is interpreted here as the platform mattress material.

On the mattress material in the centre of the platform and under a 4-inch layer of moss sods was the nearly complete but disarticulated skeleton of a child.

The eastern lobe of the platform also contained a thin layer of platform mattress and, over it, a 1- to 12-inch layer of compacted moss sods. In and on these sods were several large stone slabs. A concentration of seven large antlers, a baleen whale vertebra, and a 2-foot-long section of whalebone lay on the platform mattress and projected into the sod. This concentration occupied a narrow elliptical area reaching from the southwest corner of the east lobe of the platform almost to the centre of the east wall of the lobe. The two whalebone pieces may have served as peripheral vertical roof supports. Although no lashings or marks of lashings appeared on the antlers, their arrangement suggested that they may have been lashed together to form a part of the roof framework. Conversely, the debris over the west platform lobe, which had included more stone slabs, contained only two small fragments of antler. Artifacts and animal bones occurred in the debris over the east lobe but were noticeably more abundant in the mattress material.

Between the vertical stone supports under the leading edge of the sleeping platform were three small storage bins. Dimensions of these storage bins were not recorded. Except for the vertical stones and a pillar of coursed stones that supported the front of the platform and outlined the bins, the platform flags rested on fill material. The west lobe was built up to the desired height by a 6- to 7-inch layer of black humus, which contained a few bones. This humus layer rested on a second one made up of gravel mixed with humus. Permafrost prevented a deeper examination in this locality. Under the east lobe of the platform there was a 2-inch stratum of sod and black humus mixed, followed by a thin line of compacted moss, which, in turn, rested on a second well-laid plane of flagstones some 9 to 12 inches above the level of the central floor. Below this second flagstone surface was a half-inch of fine sandy gravel resting on a 10-inch layer of mixed gravel and sod fill. Neither bones nor artifacts occurred under the east half of the platform. Excavation depths again were limited by the permafrost line.

The house interior was encompassed by a massive sod wall which reached heights up to 26 inches over the level of the platform and benches. The inner surface of this wall was incompletely faced with large limestone slabs set vertically and resting in fill material. As noted above, Coats verticals projected from the wall toward the centre of the house and were set in the fill of the platform and benches. Some 21 of these were found in House 49. Those around the margins of the platform extended from 5 to 8 inches into the fill, while those at the rear of the benches reached down to floor-level. Two large fragments of whale skull were incorporated in the house wall in the southwest corner of the room. A similar use of whalebone was noted sporadically in the ruins of unexcavated houses on the site.

A small test cut was dug 3 feet south of the centre of the south or rear wall of House 49. Its maximum depth was 28 inches and its minimum depth 22 inches. A sod and humus matrix persisted here to depths varying between 21 and 26 inches. Below this was undisturbed gravel. Several test holes placed some distance from the houses showed the gravel to occur at depths of 5 to 8 inches. One may conclude that the greater thickness of sod and humus in this test cut was a result of house building.

The Hudson's Bay Company is a very prominent feature of life in northern Canada, and even in House 49 it left its mark. Fourteen fragments of crockery, one bearing the company's crest, were found on the surface and in the fill at the juncture of the south wall and rear edge of the west lobe of the sleeping platform. Presumably they were left there by someone who visited this house after it had collapsed.

## COMMENTS

During the 1955 field season, as a member of Collins' party, the writer had completed a detailed study of the surface remains of 111 house ruins of all kinds on the Sadlermiut site on Native Point. Of this number, ten are clearly Aivilik qarmats or tent rings, five at least are Sadlermiut houses that Aivilik have re-used, one is a semi-subterranean house of Thule culture type which Aivilik have re-used, and one is a single-room Sadlermiut house, which was excavated by W. D. Bell, a member of J. B. Bird's 1950 party (Bird, 1953). Many of the ruins were too grown-over to be positively assigned to any cultural group. Of the 58 houses that show Sadlermiut architectural features, 28 are single-room, 24 are two-room, and six are three-room structures. There are 40 house ruins with one or two alcoves let in off the passage, and 45 houses show the Coats vertical techniques. In the case of 30 houses it was possible to make an estimate of the level of sleeping platform surfaces relative to present outside ground-level. Only two appeared to have platforms at ground-level; 10 appeared to be lower than ground-level; 18 seemed to have had their sleeping platforms raised above present ground-level. These 30 houses, of course, exclude Aivilik remains, the Thule culture house noted above, and many others for which no reasonable estimate could be made without excavation. These observations are a reasonable analogue to the two houses excavated in 1956, for they were both built up from ground-level. The Sadlermiut houses visited on Coats Island were also built up from ground-level, as were some of the Prairie Point houses. Massive moss sod walls standing well above ground-level are so common in Native Point houses that their absence is taken to mean either that the structure is not Sadlermiut or that it represents a very old Sadlermiut house. Such walls also typified Sadlermiut houses seen at Prairie Point and on Coats Island.

On the basis of the Sadlermiut houses at Kuk (Mathiassen, 1927), and our observations of Sadlermiut houses at Prairie Point and Native Point and on Coats Island, it seems reasonable to accept Houses 34 and 49 as representative of the latest stage of Sadlermiut winter houses. Their excellent preservation and the presence in them of metal and wood and of human skeletons, all indicate a terminal Sadlermiut period. One might summarize by saying that Sadlermiut houses of this period are commonly built on the existing ground surface, oriented often to the south or west, and face down the slope of a slightly rising hill. They are typified by generous overall dimensions, by alcoves, insets, lateral benches, under-platform storage bins, fill-supported platform and bench surfaces, by a liberal use of well-set flagstones on all horizontal surfaces, and an extensive use of vertical stone slabs which are set along the inner face of sod walls and project from them as Coats vertical stones. These produce storage cubicles around the margin of the sleeping platforms. This liberal use of Coats verticals is not, so far as I know, seen in Thule culture houses, which also seem to be much less given to insets and storage alcoves. Indeed, the latter when found, are usually interpreted as kitchens. A survey of the literature on Thule houses suggests that these more commonly show coursed masonry where Sadlermiut houses have little use of coursed stone work but an abundance of vertical stone slabs. However, the most prominent contrast lies in the usually semi-subterranean nature of Thule culture winter houses while in Sadlermiut houses not only are platforms often above ground-level, but house and passage floor flags commonly rest at ground-level.

The alcoves let in from the entrance passages deserve an additional note. They have been interpreted as storage features similar to the "storerooms" of Houses 4 and 5 at the Ruin Island site in northwest Greenland (Holtved, 1944, Part 1, Fig. 48, p. 75; Fig. 47, p. 76). The concentration of caribou bones in the east alcove of House 34 calls to mind a comment by Mathiassen on such features in Sadlermiut houses. He notes "holes which led into storerooms, likewise built of blocks of ice, in which meat was stored, one room for each kind of meat" (1927, Part 1, p. 269). Although excavation in 1956 showed no evidence for it, these alcoves might also have served as kitchens as in the case of Holtved's House 25 at Thule (1944, Part I, Fig. 80, p. 183). This alternative is also given weight by another comment on Sadlermiut by Mathiassen: "in summer, when food was cooked with the aid of bones and blubber in a small alcove in the doorway" (1927, Part 1, p. 270). Thus, while the 1956 excavated evidence suggested only a storage function for alcoves, the possibility that they also served as kitchens is a strong one.

The 1956 field work presents only a partial explanation of roofing techniques for Sadlermiut winter houses. The vertical stone slabs and vertical whalebone sections along the walls indicated something of the roof support system as did the superstructure over the north bench of House 34. A single vertical support resting on the centre of a platform surface was also in evidence and duplicates evidence from Kuk (Mathiassen, 1927, Part I, Fig. 75, 76). Caribou antlers seem to have been very much used in roof framework, and likely some whale ribs were similarly employed. There was considerable, albeit inconsistent, evidence of limestone slabs and moss sods covering the roof framework. However, the scarcity of debris over the centre of House 34's east platform and the extreme paucity of debris over the benches and sleeping platform of House 49 demand explanation. Our hesitant suggestions of skin or snow-block roofing finds no positive evidence in excavation, and, more seriously, such a situation is never noted by eyewitnesses of the Sadlermiut people. This problem likely finds its answer in another—the absence in the excavated houses and in unexcavated ones as well (in so far as these could be studied) of any material that could have served as primary roofing beams. There is no evidence of roofs being spanned by massive cantilevered slabs or logs or whale mandibles. Something must have spanned the large rooms to support an antler framework, stones, and sods. Whale mandibles are the most likely means. This means is well supported by Comer's mention of a framework of whale mandibles in a Sadlermiut house he visited in 1896 at Bay of God's Mercy (1910, p. 87). One may conclude that the absence of such bones at Prairie Point, Native Point, and on the Coats Island site is due to decades of diligent looting by the Aivilik, who used the recovered bone for sled-shoeing. Manning (1942) has noted that the Aivilik, who occupied Southampton Island in 1908, looted Sadlermiut houses to get whalebone for sled-shoeing and other purposes. Earlier, Mathiassen (1927, Part I, p. 246) made a similar comment on the lower house group at Kuk. Finally, in 1956, Joe Curly, one of our sled drivers, shoeing on his own sled, told me of the same practice in explaining the origin of the whalebone. Very likely, later Sadlermiut contributed to the looting and house disturbance by collecting whalebone in earlier houses to build later houses. Aivilik looting would explain the open uncovered condition of many Native Point houses, the uneven debris overlaying house features, the scatter of human bones in House 34, and the four wooden matches near floor levels in House 34.

Because there were very few whalebones around the Native Point site and only 0.6 per cent in his mammal bone sample, Collins has suggested that, "Whalebones were seldom used in the construction of Native Point houses . . ." and that, "whaling was unimportant or non-existent at this Sadlermiut settlement" (1956a, p. 82). Collins' first conclusion is rejected here for the reasons given above. Even if whaling were non-existent at the turn of the century, the Sadlermiut could easily remove whalebone from their earlier houses to build the latest houses. The 2.3 per cent of whalebone in the 1956 mammal bone sample is not sufficient to weigh against Collins' interpretation.

Collins' second conclusion is supported by the scarcity of baleen in Native Point excavations, although, as Mr. G. W. Rowley suggested to the writer, such a scarcity might mean that the Saldermiut were trading baleen to European whalers as did better-known tribes in the area. Although they are never overabundant in central and eastern Arctic sites, the absence of whaling harpoon heads also hints at a termination of whaling (Collins, 1958, pers. comm.). Further, it is generally believed that by 1900 European whalers had seriously reduced the whale population in the waters off Southampton Island. Indeed, Comer has said that the Sadlermiut took their last whale in 1895 (Boas, 1907, p. 474). Even if this be an overstatement, it is a very indicative one.

## Artifact Sample

The artifact sample is typically Sadlermiut, except for 12 Cape Dorset culture pieces, and contains no surprises. Excluding feathers, lamps, innumerable bits of broken stone vessels, chert rejectage, and the 12 Cape Dorset culture artifacts, there are 1,561 specimens. Of this total 1,310 were found in House 34 and only 247 in House 49. Artifacts of chipped chert are a prominent 52.8 per cent of the sample and total 825 specimens. Only one ground slate artifact was recovered, and of other worked stone there are 60 pieces. Two metal ulu blades and the metal blade of a man's knife were found hafted. A sliver of iron occurred in a tuft of blue woollen fabric. Except for these, only 12 metal fragments were found, and most of the 12 were probably left by Aiviliks. Some 663 artifacts, or 42.5 per cent, were of organic material. Bone, ivory, and antler constitute the bulk of these, although wood, shell, baleen, fabric, hide, intestine, and samples of vegetable-fibre textile were recorded.

Within the class of chipped stone there is the interesting total of 385 scrapers of all types, and 327 of these are from House 34. More remarkable perhaps is the total of 136 end blades. House 34 yielded 124 of these, and no less than 97 are end blades for arrows.

The Cape Dorset culture specimens were generally found in wall or fill material indicating accidental inclusion as a result of building activities. They represent artifact types that one would expect in the nearby Cape Dorset culture site KkHh-4 (Termed Site T2 in Collins, 1956a).

The harpoon head fragment (Plate VI, Fig. A), represents a late variant of the Thule II type (Mathiassen, 1927, Part I, Plate 63, Fig. 1, and p. 214) and incorporates a step for end blade. This end-blade step is fashioned in a manner that occurs commonly on Saldermiut pieces. Thus the specimen shows a combination of Thule and Sadlermiut culture ideas. It may be that this harpoon head originally lay in a Thule culture type house ruin some 100 yards from House 49 where it was found. More likely it is a Sadlermiut specimen showing something of the Thule culture contribution to Sadlermiut culture. This interpretation could apply also to the wound needle and the arrow foreshafts with the blade step and scarfed base, Plate VI, fig. D, E, F, (*see* Mathiassen, 1927, Part I, Plate 65, Fig. 21). Thus the artifact sample shows that the Sadlermiut material culture reflects items noted for late Thule culture and the period of transition from Thule to modern Central Eskimo culture.

Plate VI, fig. B, C, shows two harpoon heads quite unlike those commonly found in Sadlermiut sites and, it seems, previously unreported in Sadlermiut samples. They both have a narrow blade slot at right angles* to the paired line holes. These are similar to ones from a grave at Qilalukan-Mitimatalik; illustrated by Mathiassen (1927, Part I, Plate 65, Fig. 1 to 5, and especially Fig. 5). Mathiassen placed his examples chronologically between Thule culture and the Igloolikmiut, who represent modern Central Eskimo culture (1927, Part I, p. 217). A rather similar head illustrated by Holtved (1944, Part 1, Plate 4, Fig. 27, 29, 31) is assigned by him to the sixteenth century (1944, Part II, p. 43). The Thule culture village sites Qilalukan-Mitimatalik also produced harpoon heads of considerable similarity and at the same time rather distinctive in a Thule context (Mathiassen, 1927, Part I, Plate 40, Fig. 4, 11). Thus we see as a distinctive minority type in later Thule sites, in transitional sites, and in late Sadlermiut sites, harpoon heads with paired line holes that often meet on the underside as a single hole, commonly with a blade slot or step at right angles to the line holes, with an open socket, drilled lashing holes, symmetrically spurred base, and often with secondary bifurcation in the spurs. These similarities might be construed as evidence for a Thule ancestry of Sadlermiut culture. Along with a late variant of the Thule II type head, they might indicate a late divergence of the Sadlermiut from a Thule culture parent. However, there is an interesting parallel to a Dorset culture harpoon head, described

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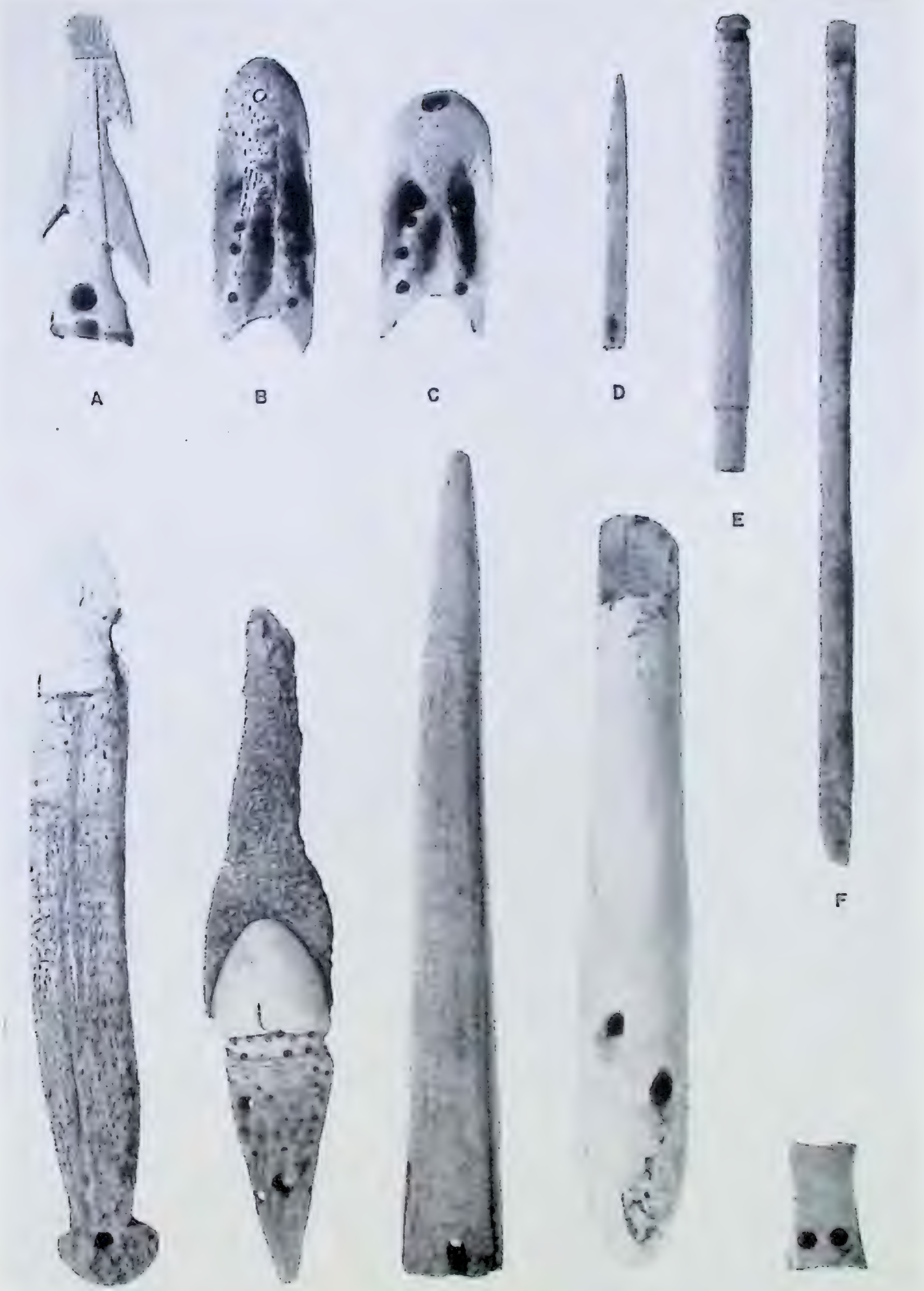
*Although this is an admissible term in describing the form of these heads, it should be noted that functionally the line holes and blade slots are parallel to one another, for the line both entered and left the harpoon head on the same side.

## Plate VI

(½ natural size)

| | |
|---|---|
| Fig. A. | Harpoon head fragment, ivory. House 49, on the central floor. |
| Fig. B. | Harpoon head, bone. House 34, on the east platform. |
| Fig. C. | Harpoon head, antler. House 34, in debris over central floor. |
| Fig. D. | Needle, ivory. House 49, on the central floor. |
| Fig. E. | Arrow foreshaft, antler. House 34, in debris over west alcove. |
| Fig. F. | Arrow foreshaft, bone. House 49, on the central floor. |
| Fig. G. | Dagger with end blade, bone. House 34, in debris over west alcove. |
| Fig. H. | Foreshaft of knife with metal blade, ivory. House 34, in debris over east platform. |
| Fig. I. | Harpoon foreshaft, bone. House 34, on floor of east alcove. |
| Fig. J. | Harpoon foreshaft, ivory. House 34, in debris over east alcove. |
| Fig. K. | Harpoon finger rest, ivory. House 34, in fill of southeast bench. |

Plate VI



by Collins (1950, pp. 20–21) as closed rectangular socket type B-1(a). Although this type has a closed socket and lacks lashing holes, there is in common the symmetrically spurred base, paired line holes, and blade slot at right angles to the line hole. Another attribute held in common is that of "channelling" or "grooving" around the line holes on one side of the head. Several of the post-Dorset specimens referred to above lack an end blade and are thus more like Collins' Closed socket B-1(b) type rather than the bladed B-1(a) type. Thus the open-socket heads, with paired line holes and symmetrical spurs in the Sadlermiut culture may constitute Thule or Dorset influence on Sadlermiut, or Dorset influence maintained by late Thule culture and passed on to the Sadlermiut. They might even mean a Dorset pattern maintained by Sadlermiut peoples and passed by them to the Thule culture. At present, the last alternative is the least likely. Though achieving no decision, these comments illustrate the lack of pertinent data that has resulted in two conflicting interpretations of Sadlermiut origins.

Mathiassen concluded that the anomalous Sadlermiut represented a Thule culture group that, in isolation, developed a distinctive pattern (1927, Part I, p. 287). More recently Collins has put forth an alternative, well-stated in his own words, "I would like to suggest the possibility, already pointed out by de Laguna, that one of the most important groups of modern Canadian Eskimos, namely the Sadlermiut, were the lineal descendants of the old Dorset people, rather than the Thule, as has been generally assumed. Our excavations on Southampton Island produced clear evidence that the Sadlermiut harpoon head, which is the dominant late form of harpoon head throughout the Central Arctic, was derived from a Dorset prototype, as I had suggested on typological grounds some years ago" (1958, pp. 558–59). Collins has illustrated the Sadlermiut harpoon head type of which he writes (1956(a), Plate XII, Fig. 6, 7), and in his typological study (1950) he defined the "Dorset prototype" as his Closed rectangular socket type B-2(a). This type, he suggests further, developed from his Closed socket type B-1(a). Though suggesting an ultimately Dorset culture origin for the Sadlermiut, Collins is well aware of a Thule culture component in Sadlermiut culture. Pertinent to discussions of Dorset or Thule culture origins of the Sadlermiut is the generally ignored problem of Dorset contributions to Thule culture. There is the possibility that the Dorset elements in Sadlermiut samples noted by Collins represent Dorset contributions to the Thule culture. It is most unlikely that, during the generations when Thule was replacing Dorset, the latter did not have a noticeable influence on the former. Collins' observation of a Dorset prototype for the dominant late form of the modern Central Eskimo harpoon head is a significant and, at present, unique instance of Dorset contribution to later cultures. Further work might validate the suggestion made above that the open-socket type, with paired "channelled" line holes and symmetrical spurs, also derived from a Dorset prototype.

A traditional argument among writers on the Sadlermiut pertains to geographic origin. Some favour the south coast of Melville Peninsula, largely for geographic reasons, while others have suggested Foxe Peninsula, because in several cultural details the Sadlermiut resembled southern Baffinlanders. The folklore supports either coast as home, and I know of no dependable statement of linguistic affinities of the Sadlermiut dialect. To date, the only physical anthropological study of the Sadlermiut is Hrdlicka's study of fourteen crania (1910), which was later discussed by Collins (1934). The skeletal data give no solution to the question of Sadlermiut migrations. Parenthetically, it should be noted that while the skeletal data rather support Mathiassen's view of Sadlermiut as a remnant Thule group, this might only be because of our ignorance of the physical type of the Dorset culture. In short, neither suggestion of geographic origin suffers from an excess of supporting evidence. A third alternative is entirely feasible—that there was no Sadlermiut migration, despite the folklore recorded by Mathiassen from Aivilik, not Sadlermiut, informants (1927, Part I, p. 283). The Sadlermiut might not have become a distinctive entity until after their Thule or Dorset progenitors occupied Southampton and Coats islands. In short, Sadlermiut culture may have developed *in situ,* and the affinities to adjacent areas could well be an increment of diffusion or minor migration, accidental or intended.

As Collins has pointed out (1958, p. 539), the solution of these Sadlermiut problems does not lie in the recently excavated sites of late Sadlermiut peoples but in older sites representing developmental stages. With the easy travel and numerous sites on the south shore of Southampton Island the task could be a pleasant one.

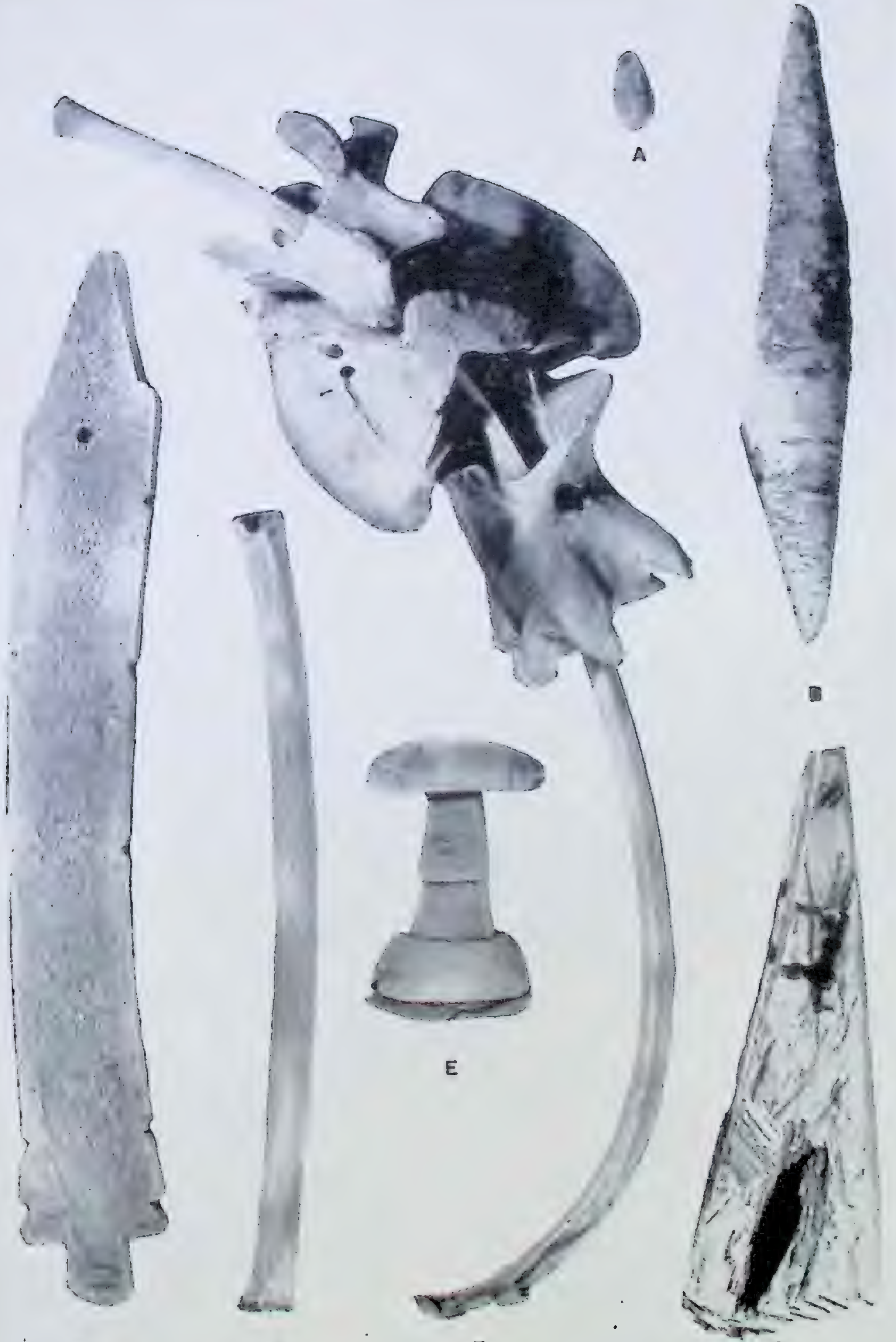
*Faunal Material.* Although a few bird, shell, and fish remains were found, the most prominent material in this category is mammalian. Table 1 summarizes this and compares it with the Sadlermiut bone material presented by Collins from his 1954 excavations (1956b). Following the 1954–55 pattern, skulls, mandibles, limb bones, scapulae, pelvic bones, antlers, hoofs, claws, and, where possible, ribs and vertebrae were identified. There remained 1,304 bones unidentified. Most were too fragmentary, or they were such as phalanges and epiphysial caps. A few complete bones and many vertebrae and ribs that were beyond the writer's limited knowledge are included in the unclassified category. The most marked contrasts between the 1954 and 1956 samples are the decrease in seal frequency and the increase in caribou percentage. Of the 1,273 caribou bones no less than 668 are ribs, and a great part of this number was contributed by the superabundance of caribou ribs in the east alcove of House 34. Rather than compare the percentages recorded for 1954 and 1956, it seems advisable to combine them, as in the chart, to suggest a more precise index of Sadlermiut game returns. That only one bone, a mandible, of Arctic hare was recorded from some 6,538 identified mammal bones is indeed surprising. It may in part reflect ignorance on the writer's part, for this animal occurs commonly on Southampton Island (Sutton and Hamilton, 1932–36). It is conceivable that the Sadlermiut did not hunt hare. However, the reasonably high percentage of caribou indicates considerable hunting on land, as opposed to sea, so that hares would have been encountered and surely taken by the hunters, unless the bone sample represents a period when the local hare population was at a minimum for its population cycle. The single fragment of narwhal remains, a tusk, is less surprising in the light of Sutton and Hamilton's comment on narwhal, "I heard various reports of others, which had been seen in South Bay by the Eskimos, but they were known to be very rare in this region" (Ibid., p. 95).

# PLATE VII

($\frac{1}{2}$ natural size)

| | |
|---|---|
| Fig. A. | Pendant of worked tooth. House 49, in debris over west bench. |
| Fig. B. | Scarfed section of shaft, bone. House 34, in debris over west platform. |
| Fig. C. | Section of bow, antler. House 34, in debris over east alcove. |
| Fig. D. | Sucking tube, bird bone. House 34, in fill under southeast bench. |
| Fig. E. | Antler ulu with metal blade. House 34, on mattress of west platform. |
| Fig. F. | Three vertebrae strung on a rib. House 34, in debris over west platform. |
| Fig. G. | Unidentified object, ivory. House 34, on floor of the east alcove. |

PLATE VII



## PLATE VIII

(½ natural size)

Fig. A. Kayak attachment, ivory. House 34, on mattress of east platform.

Fig. B. Textile fragment, vegetable fibre. House 34, on central floor.

Fig. C. Bolas weight, ivory. House 49, in wall cut behind south wall.

Fig. D. Woman's hair ornament, antler. House 34, in fill under east platform.

Fig. E. Scraper of caribou scapula. House 49, on entrance passage floor.

Fig. F. Scraper of seal scapula. House 34, in sod over west alcove.

Fig. G. Chert biface side blade, Dorset culture. House 34, in debris over east platform.

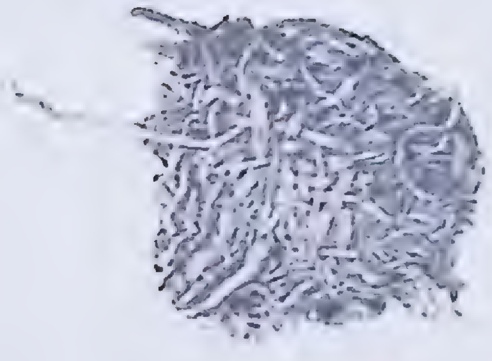
Fig. H. Harpoon head, Dorset culture. House 34, in fill under north bench.

Fig. I. Chert triangular end blade, Dorset culture. House 34, in sod wall of east side of passage.

Fig. J. Chert triangular end blade, Dorset culture. House 49, on central floor.

PLATE VIII

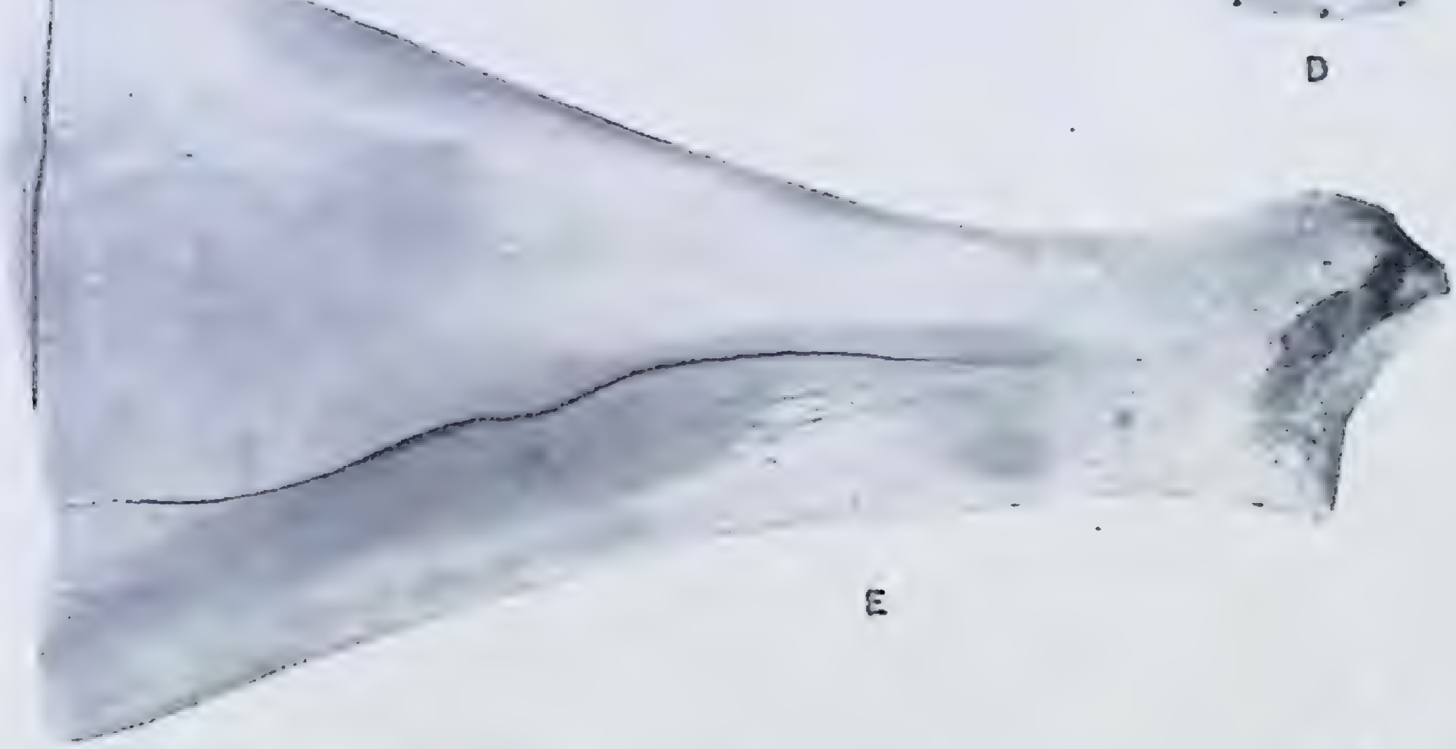
A



B

C

D



E

F

G

H

I

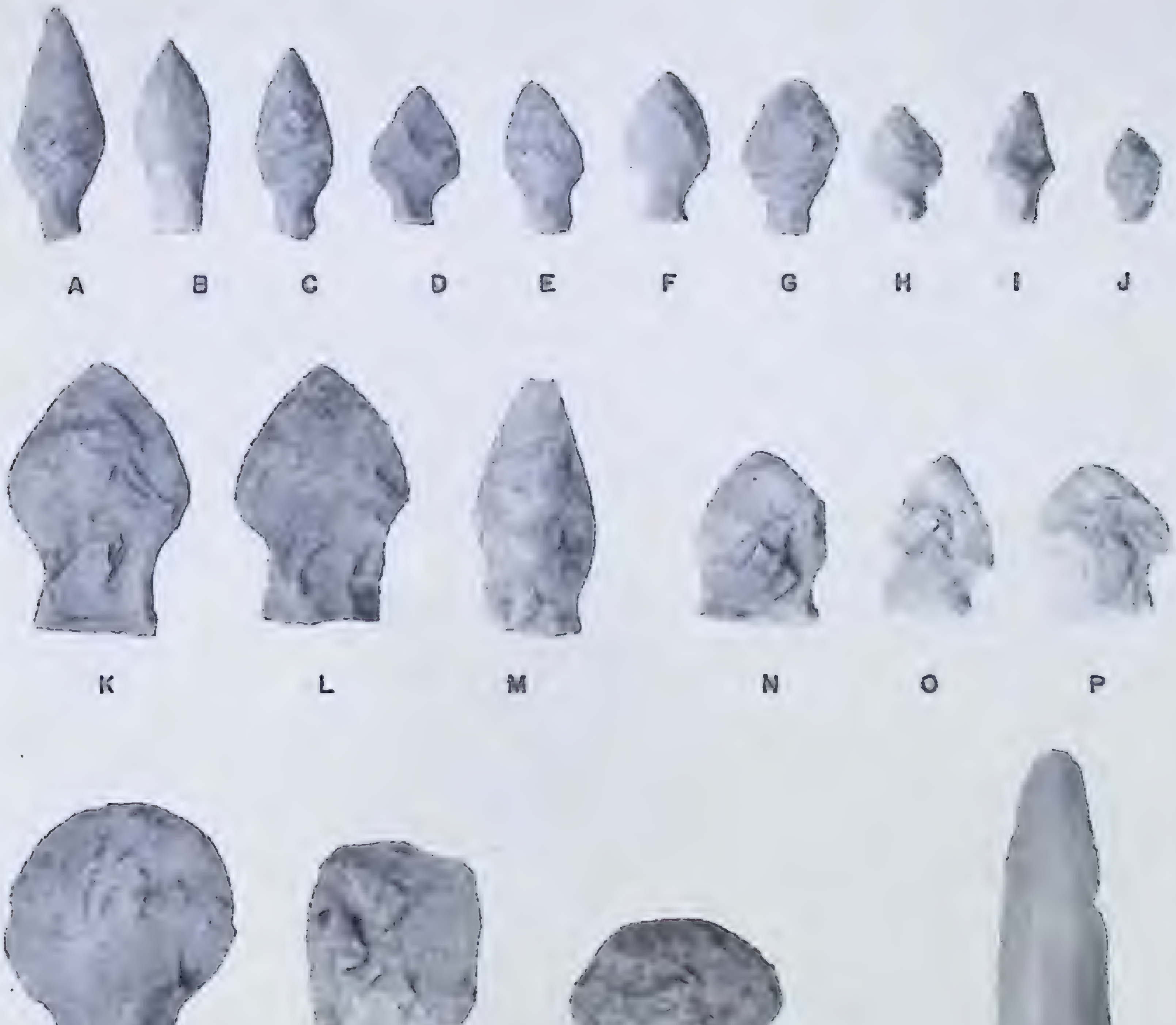
J

## Plate IX

(½ natural size)

Fig. A. Uniface arrow end blade, chert. House 34, on the east platform.
Fig. B. Biface arrow end blade, chert. House 34, in debris over central floor.
Fig. C. Biface arrow end blade, chert. House 34, on the east platform.
Fig. D. Biface arrow end blade, chert. House 34, under the central floor.
Fig. E. Biface arrow end blade, chert. House 34, on the east platform.
Fig. F. Biface arrow end blade, chert. House 34, in debris over east room.
Fig. G. Biface arrow end blade, chert. House 49, in debris over the floor.
Fig. H. Biface arrow end blade, chert. House 34, on the passage floor.
Fig. I. Uniface arrow end blade, chert. House 49, on floor of passage.
Fig. J. Biface arrow end blade, chert. House 34, in debris over west platform.
Fig. K. Biface lance or knife blade, chert. House 34, on the east platform.
Fig. L. Biface lance or knife blade, chert. House 34, on the passage floor.
Fig. M. Biface lance or knife blade, chert. House 49, on the sleeping platform.
Fig. N. Biface harpoon end blade, chert. House 34, in debris over east platform.
Fig. O. Biface harpoon end blade, chert. House 34, in debris over west platform.
Fig. P. Biface harpoon end blade, chert. House 34, on the central floor.
Fig. Q. Biface, tanged end scraper, chert. House 34, on east platform.
Fig. R. Biface, tanged end scraper, chert. House 34, on east platform.
Fig. S. Biface, tanged end scraper, chert. House 34, in debris over east platform.
Fig. T. End blade, rubbed slate. House 34, on the central floor.
Fig. U. Core, chert. House 49, in debris over central floor.
Fig. V. Flake chopper, chert. House 34, under the central floor.
Fig. W. Retouched flake scraper, chert. House 49, on the main floor.

PLATE IX



## Plate X

(½ natural size)

Fig. A. Drill bit, chert. House 34, on the east platform.
Fig. B. Drill bit, chert. House 34, in debris over central floor.
Fig. C. Drill bit, chert. House 34, in fill under east platform.
Fig. D. Hand drill, chert. House 34, in debris near central floor.
Fig. E. Flake borer or perforator, chert. House 34, in debris near central floor.
Fig. F. Flake borer or perforator, chert. House 34, on the central floor.
Fig. G. Flake borer or perforator, chert. House 34, in debris over west platform.
Fig. H. Flake utilized as concave scraper, chert. House 49, on the platform.
Fig. I. Flake retouched as concave scraper, chert. House 49, in the platform fill.
Fig. J. Flake utilized as knife, chert. House 34, in sod wall of west room.
Fig. K. Flake retouched as scraper, chert. House 34, in debris over passage.
Fig. L. Flake retouched as knife, chert. House 34, in fill under southeast bench.
Fig. M. Flake retouched as end scraper, chert. House 49, on the platform.
Fig. N. Biface ovate blade, chert. House 34, on the central floor.
Fig. O. Uniface ovate blade, chert. House 49, in debris over floor.
Fig. P. Biface knife blade, chert. House 34, in debris over east alcove.
Fig. Q. Polishing pebble, quartzite. House 34, on east platform.
Fig. R. Iron pyrite. House 34, on east platform mattress.
Fig. S. Side of cooking vessel, sandstone. House 34, under southeast bench.

PLATE X

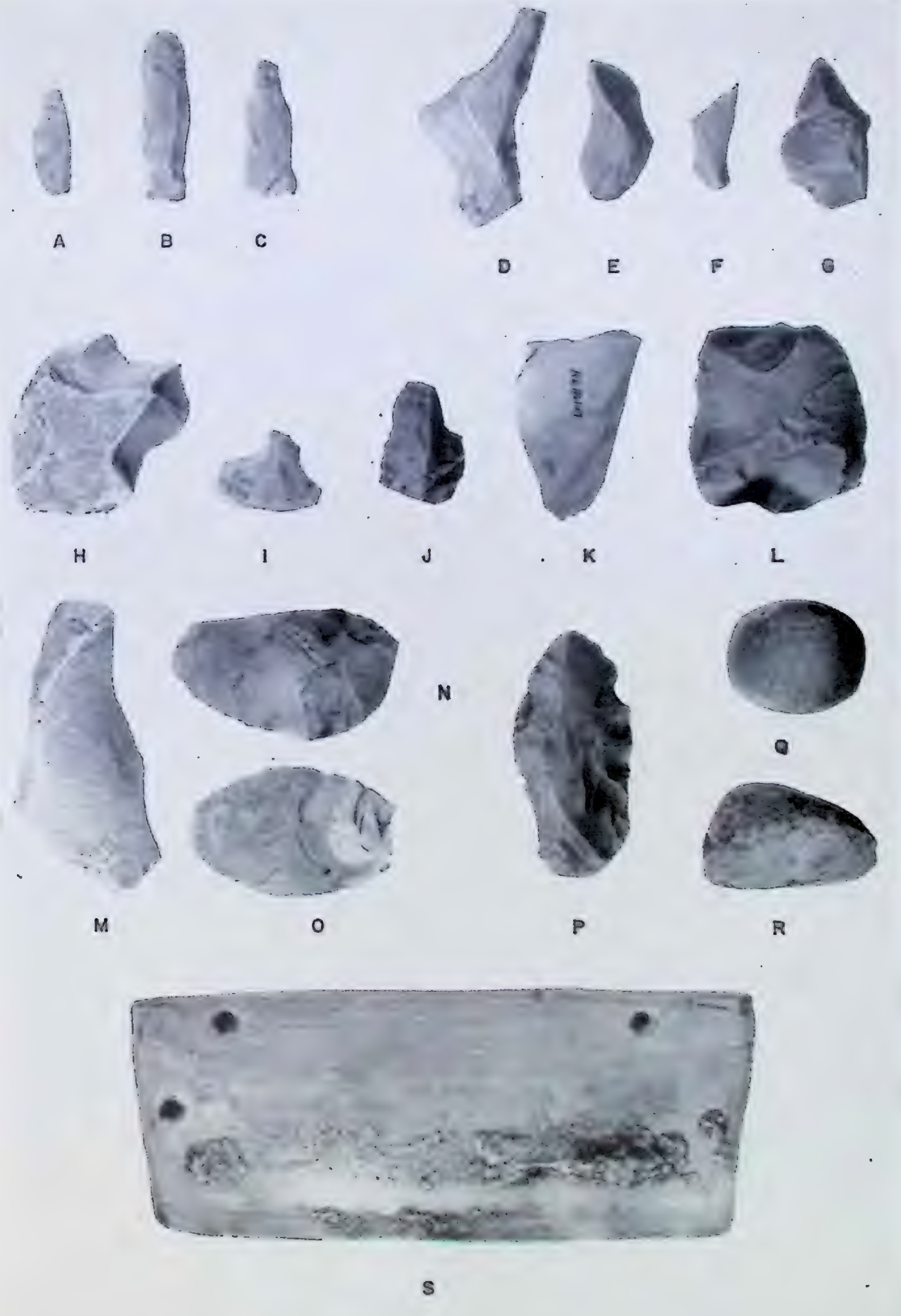


Table 1.—Summary of Mammal Bones

| Animal | 1956 | | 1954 | | Combined | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| Whale | 84 | 2.3 | 6 | 0.2 | 90 | 1.4 |
| Walrus | 507 | 13.7 | 149 | 5.3 | 656 | 10.0 |
| Bearded seal | 259 | 7.0 | 204 | 7.2 | 463 | 7.1 |
| Seal, other than bearded seal | 1,413 | 38.0 | 1,840 | 65.2 | 3,253 | 49.8 |
| Caribou | 1,273 | 34.3 | 332 | 11.8 | 1,605 | 23.8 |
| Dog (and wolf?) | 80 | 2.2 | 180 | 6.4 | 260 | 3.9 |
| Fox | 36 | 1.0 | 75 | 2.7 | 111 | 1.7 |
| Bear | 60 | 1.6 | 38 | 1.3 | 98 | 1.5 |
| Hare | 1 | — | — | — | 1 | — |
| Narwhal | 1 | — | — | — | 1 | — |
| Unclassified | 1,304 | — | — | — | — | — |
| TOTAL | 5,018 | 100.1 | 2,824 | 100.1 | 6,538 | 99.2 |

Table 2.—Summary of Artifacts, 1956

| NON-LITHIC ARTIFACTS | House 34 | House 49 | Total |
|---|---|---|---|
| Harpoon head | 19 | 6 | 25 |
| Leister prong | 1 | — | 1 |
| Loose lance head | 2 | — | 2 |
| Fixed harpoon foreshaft | 5 | 1 | 6 |
| Loose harpoon foreshaft | 4 | — | 4 |
| Foreshaft socket piece | 2 | — | 2 |
| Scarfed section of mainshaft | 9 | 3 | 12 |
| Harpoon finger rest | 4 | — | 4 |
| Harpoon ice pick | 1 | — | 1 |
| Atlatl dart foreshaft | 2 | — | 2 |
| Line stopper | — | 1 | 1 |
| Kayak attachment | 1 | — | 1 |
| Bow brace | 3 | 1 | 4 |
| Arrow foreshaft | 15 | 1 | 16 |
| Arrow shaft section | 21 | 5 | 26 |
| Quiver handle? | 1 | — | 1 |
| Man's knife | 5 | — | 5 |
| Foreshaft of man's knife | 3 | 1 | 4 |
| Antler hammer | 2 | 2 | 4 |
| Walrus baculum club | 1 | — | 1 |
| Mattock head | 7 | 1 | 8 |
| Adze head | 2 | — | 2 |
| Adze or mattock handle | 1 | 1 | 2 |
| Walrus rib flaker, large | 15 | 3 | 18 |
| Walrus rib flaker, small | 8 | 3 | 11 |
| Fish needle | 2 | 1 | 3 |
| Dog harness buckle | 3 | 4 | 7 |
| Sled shoe fragment | — | 1 | 1 |
| Sled runner fragment | 1 | 1 | 2 |
| Sled cross-piece | 3 | 3 | 6 |
| Snow knife blade or fragment | 5 | 2 | 7 |
| Snow knife handle | 1 | — | 1 |
| Bolas ball | — | 1 | 1 |
| Bear canine toggle | 7 | 2 | 9 |

TABLE 2.—SUMMARY OF ARTIFACTS, 1956—(*Continued*)

| NON-LITHIC ARTIFACTS | House 34 | House 49 | Total |
|---|---|---|---|
| Plain toggle | 1 | — | 1 |
| Bone end blade, corner-notched | 1 | — | 1 |
| Handle for hafted scraper | 2 | — | 2 |
| Caribou scapula scraper | 4 | 1 | 5 |
| Seal scapula scraper | 9 | 1 | 10 |
| Reworked seal ulna | 17 | 4 | 21 |
| Ivory hook | 1 | — | 1 |
| Bone awl | 5 | — | 5 |
| Bone awl of caribou limb bone sliver | 2 | — | 2 |
| Cut swan bone | 1 | — | 1 |
| Sucking tube of swan bone | 5 | — | 5 |
| Dish bottom | 2 | 1 | 3 |
| Ulu handle | 5 | — | 5 |
| Ivory needle | — | 2 | 2 |
| Ivory peg | 1 | — | 1 |
| Pendant of bear molar | — | 1 | 1 |
| Pendant of bear canine | 3 | — | 3 |
| Pendant of fox canine | 4 | — | 4 |
| Pendant of fox incisor | 2 | — | 2 |
| Pendant of walrus tooth | 1 | — | 1 |
| Pendant of ivory | 1 | — | 1 |
| Pendant cut from tooth (walrus?) | 6 | 1 | 7 |
| Pendant of fox phalanges | 78 | 1 | 79 |
| Bead of cut swan bone | 1 | — | 1 |
| Ivory gaming birds | 7 | — | 7 |
| Woman's hair ornament | 1 | — | 1 |
| Three vertebrae strung on a rib (caribou) | 1 | — | 1 |
| Fragment of bone reinforcement | 1 | — | 1 |
| Narwhal tusk fragment | 1 | — | 1 |
| Unidentified fragment of worked bone | 55 | 10 | 65 |
| Unidentified fragment of worked antler | 21 | 2 | 23 |
| Unidentified fragment of worked ivory | 39 | 8 | 47 |
| Coil of baleen line | 1 | — | 1 |
| Net fragment of baleen | 1 | — | 1 |
| Fragment of baleen | 14 | 1 | 15 |
| Fragment of dehaired sealskin, sewn | — | 1 | 1 |
| Fragment of dehaired sealskin | 1 | — | 1 |
| Fragment of intestine | 1 | — | 1 |
| Feathers | x | — | x |
| Wooden handle | 1 | — | 1 |
| Wooden plug | 1 | — | 1 |
| Wooden shaft fragments | 14 | 2 | 16 |
| Wooden matches | 4 | — | 4 |
| Unidentified wood fragments | 50 | 32 | 82 |
| Shell fragments[1] | 18 | 5 | 23 |
| Shell, perforated | 1 | — | 1 |
| Unidentified textile | 1 | — | 1 |
| Blue wool fabric shred | 1 | — | 1 |
| Textile, Z-twist, clockwise, 1 ply yarn in an over-one-and-under-one loose plain weave of willow root or bark | 3 | — | 3 |

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[1] The shell fragments are predominantly of *Mytilus edulis*. Two are of *Chlamys* sp. or *C. islandicus*. One is an unidentified fragment of a pelecypod. The writer is indebted for these identifications to Dr. F. J. E. Wagner of the Geological Survey of Canada.

Table 2.—Summary of Artifacts, 1956—(*Continued*)

| | House 34 | House 49 | Total |
|---|---|---|---|
| Metal Artifacts | | | |
| Fragment of kerosene lantern | — | 1 | 1 |
| Fragment of sheet metal | — | 1 | 1 |
| Copper ulu blade | 2 | — | 2 |
| Perforated copper fragment | 1 | — | 1 |
| Copper harpoon end blade | 1 | — | 1 |
| Iron fragment | 3 | — | 3 |
| Tin can fragment | 2 | — | 2 |
| Lead shot | 1 | — | 1 |
| Lithic Artifacts, Not Chipped | | | |
| Iron pyrite lumps | 20 | 3 | 23 |
| Fragments of rectangular limestone vessels | x | x | x |
| Limestone lamps | x | x | x |
| H.B.C. earthenware sherds | — | 14 | 14 |
| Hammerstone | 7 | 1 | 8 |
| Rubbing or polishing stone | 10 | 1 | 11 |
| Whetstone | 2 | — | 2 |
| Abrading stone | 1 | — | 1 |
| Mica fragment | 1 | — | 1 |
| Ground slate end blade | 1 | — | 1 |
| Lithic Artifacts, Chipped | | | |
| Core | 22 | 5 | 27 |
| Core, utilized as end scraper | 4 | — | 4 |
| Core, retouched as scraper | — | 1 | 1 |
| Core, chopper | 11 | — | 11 |
| Flake, chopper | 8 | 2 | 10 |
| Flake, utilized as end scraper | 8 | 2 | 10 |
| Flake, utilized as scraper | 169 | 26 | 195 |
| Flake, retouched as end scraper | 16 | 2 | 18 |
| Flake, retouched as scraper | 94 | 17 | 111 |
| Flake, utilized as concave scraper | 6 | — | 6 |
| Flake, retouched as concave scraper | 22 | 7 | 29 |
| Flake, utilized as knife or saw | 11 | 4 | 15 |
| Flake, retouched as knife or saw | 12 | 4 | 16 |
| Flake, retouched as borer or perforator | 33 | 5 | 38 |
| Flake, retouched as hand drill | 2 | — | 2 |
| Flake, prismatic | 5 | — | 5 |
| Biface end scraper, tanged for haft | 8 | 3 | 11 |
| Biface ovate blade | 27 | — | 27 |
| Uniface ovate blade | 7 | 3 | 10 |
| Blade blank | 15 | — | 15 |
| Biface blade fragment | 81 | 13 | 94 |
| Drill bit | 6 | — | 6 |
| Biface knife, sidenotched | 4 | — | 4 |
| Biface knife, single-shouldered | 4 | — | 4 |
| End blade, arrow, stemmed, straight, uniface | 8 | 1 | 9 |
| End blade, arrow, stemmed, straight, biface | 47 | 2 | 49 |
| End blade, arrow, stemmed, expanding base, uniface | 7 | 1 | 8 |
| End blade, arrow, stemmed, expanding base, biface | 33 | 2 | 35 |
| End blade, arrow, unclassified | 2 | — | 2 |
| End blade, lance or dagger, stemmed, straight, uniface | 1 | — | 1 |
| End blade, lance or dagger, stemmed, expanding base, biface | 12 | 3 | 15 |

TABLE 2.—SUMMARY OF ARTIFACTS, 1956—(*Concluded*)

| LITHIC ARTIFACTS, CHIPPED | House 34 | House 49 | Total |
|---|---|---|---|
| End blade, lance or dagger, stemmed, straight, biface. | — | 2 | 2 |
| End blade, lance or dagger, fragment | 3 | — | 3 |
| End blade, harpoon, stemmed, expanding base, biface. | 7 | — | 7 |
| End blade, harpoon, stemmed, straight, biface | 3 | 1 | 4 |
| End blade, harpoon, sidenotched, biface | 1 | — | 1 |
| Chipped stone rejectage | x | x | x |
| Chipped stone unclassified | 17 | 3 | 20 |
| TOTALS | 1,314 | 247 | 1,561 |

| CAPE DORSET CULTURE ARTIFACTS | House 34 | House 49 | Totals |
|---|---|---|---|
| Harpoon head | 1 | — | 1 |
| Harpoon end blade, triangular, concave base, biface | 4 | 1 | 5 |
| Asymmetric knife end blade, biface | — | 2 | 2 |
| Ovate side blade, biface | 2 | — | 2 |
| Soapstone vessel fragment | 2 | — | 2 |
| TOTALS | 9 | 3 | 12 |

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# DjRi 3, AN EARLY SITE IN THE FRASER CANYON, BRITISH COLUMBIA

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Results of excavations carried out by the Department of Anthropology, University of British Columbia, at several large sites near the mouth of the Fraser River, supplemented by six radiocarbon dates, have made it possible to work out a fairly detailed cultural sequence in the delta region for the last 3,000 years (Borden, n.d.). The stages which preceded the initial phases of this sequence are not yet known, nor do we have any clear notion where such earlier developments may have taken place.

Evidence of great time depth for the presence of man in southwestern Canada has been discovered recently somewhat more than 100 miles inland from the Gulf of Georgia. As part of a continuing program of archæological research, a site survey was carried out in the summer of 1956 of the lower Fraser valley from the mouth of Sawmill Creek, some five miles north of Yale to the vicinity of Ruby Creek, about nine miles southwest of Hope[1]. This stretch of the river is entirely within the territory of the Tait, the easternmost group of the Stalo Indians, who constitute one of the mainland divisions of the Coast Salish. In his excellent ethnography of the Upper Stalo, Duff (1952:30–34) lists and describes the location of twenty-three sites in Tait territory that were known to his informants. Most of these were visited and examined in 1956. In addition, a series of previously unrecorded sites was located. Indications of long human occupation were found at some localities near Hope and Yale.

The region immediately north of Yale holds particular interest. Here the valley of the Fraser River, which is navigable up to Yale, narrows abruptly to form a deep, steep-sided canyon. The turbulent river, forcing its way through this narrow channel, presents a formidable obstacle to the various species of salmon as they ascend the Fraser in their annual runs. "Fighting their way up the canyon, hugging the banks to utilize every backwater and eddy, these fish were easily caught in dip-nets, and drew thousands of Indians to the banks of the river to reap the harvest. The weather, warm, dry, with a constant up-river breeze, was ideal for drying the fish. This fortunate array of circumstances gave the Upper Stalo a storehouse of food unexcelled by that of any other Indian tribe" (Duff, 1952:62). It would be difficult, states Duff, (*ibid.*, 14) to overemphasize the "importance in Stalo economy and prehistory" of the 5 miles of canyon above Yale. Interestingly, the earliest known evidence of human occupation in western Canada comes from site DjRi 3, situated in this 5-mile stretch of the Fraser Canyon. The ancestors of the Stalo, of course, were not necessarily the first Indians to be attracted to this region.

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[1] Archæological field work in the summer of 1956 was supported by the University of British Columbia Committee on Research and the Leon and Thea Koerner Foundation.

PLATE I

Fig. 1. Fraser Canyon site DjRi 3 looking south. Fraser River and CNR tracks on right. Earliest occupation stratum is at level of 5-foot rod crossing lower part of vertical tape on exposed face.

Fig. 2. Exposing culture stratum imbedded in sands laid down by Fraser River more than 8,000 years ago.

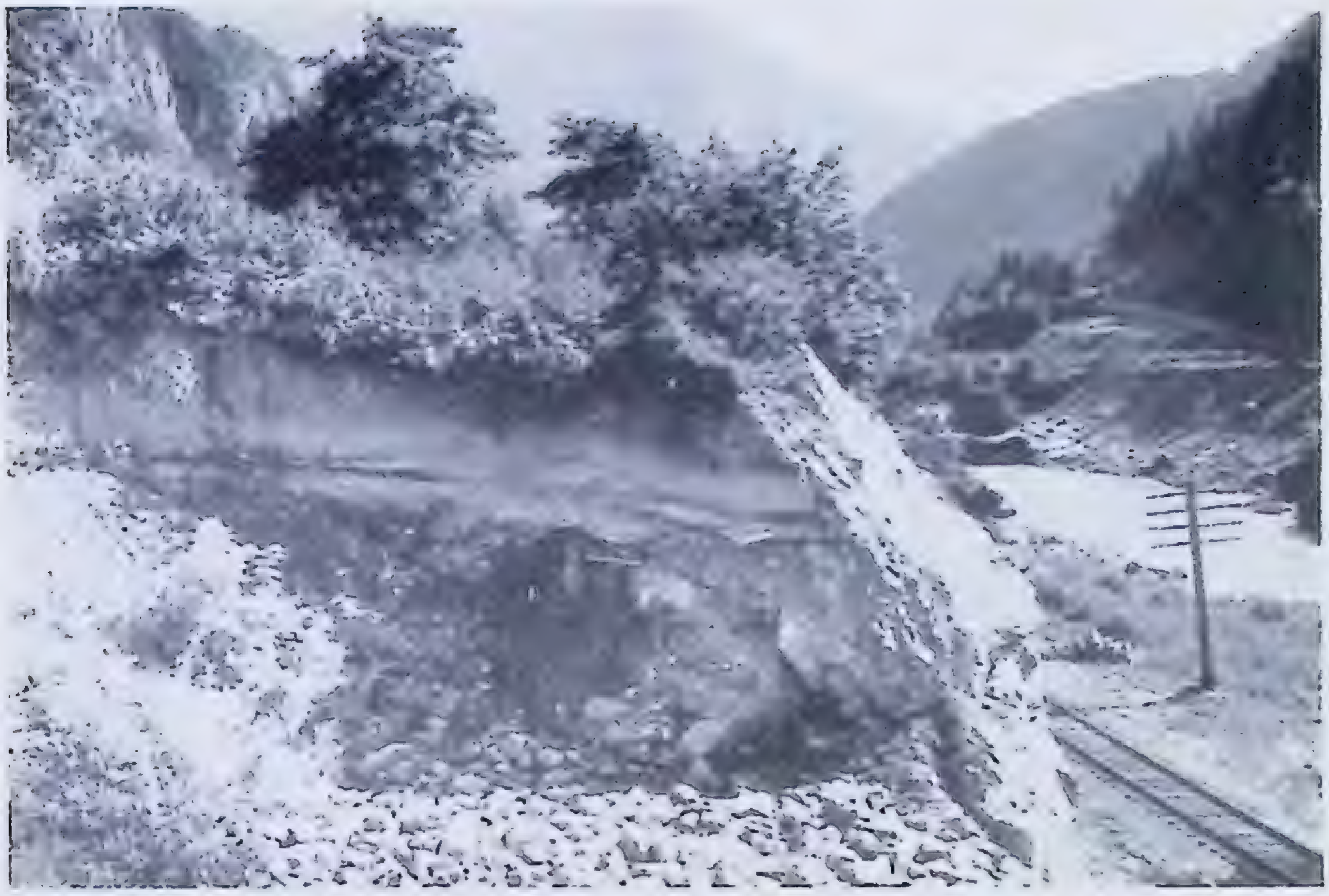

Fig. 1

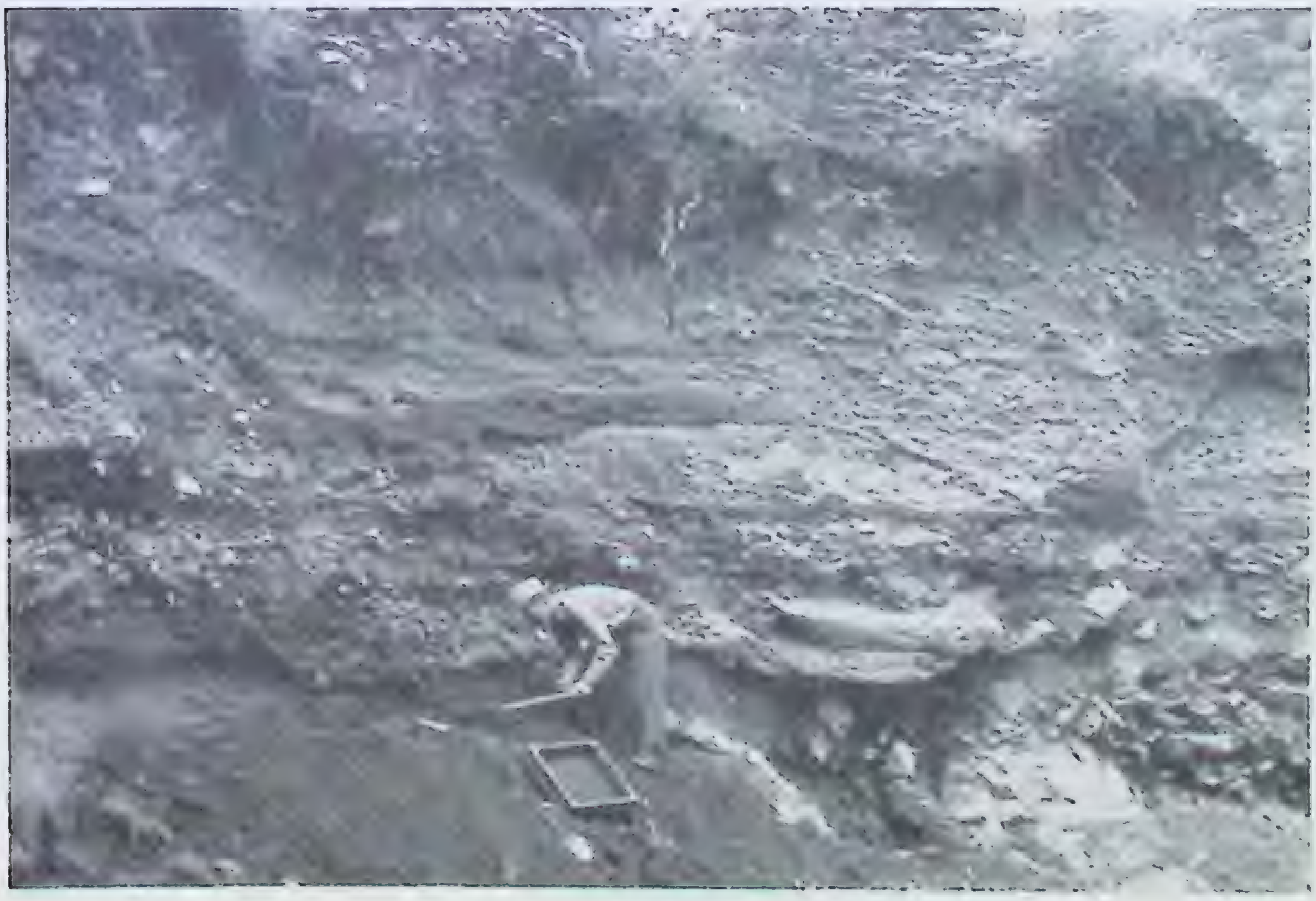

Fig. 2

Plate II

Close-up of part of south face at Fraser Canyon site DjRi 3. Earliest cultural horizon is visible as dark seam through sand on lower left. At least five later occupational levels, separated by sterile sands and gravels, overlie the oldest cultural deposit.

Plate II

Site DjRi 3[1] is located on the east bank of the Fraser, a few hundred yards north of the mouth of Siwash Creek. Here a large pit was excavated by bulldozer into the hillside east of the CNR right-of-way. The nearly vertical south face of this pit reveals a deposit of stratified sands and gravels more than twenty feet in depth, the massive geological strata being interlaced by a series of occupational layers containing charcoal, chipping detritus, and artifacts. A preliminary examination suggested that the thick sand deposits in which the earliest occupation horizon was embedded and possibly some of the later geological strata were laid down by the Fraser at a period when the high-water level of the river was at least forty feet higher than it is today (Borden and Daugherty, 1957:325).

Because of this suggestion of considerable antiquity, I persuaded Dr. William H. Mathews of the Department of Geology, University of British Columbia, to visit the site with me in the spring of 1957 and to make a study of its geological history. Dr. Mathews very kindly has granted permission to present here the results of his examination.

> Site DjRi 3 lies in sands and gravels occupying a rock-rimmed embayment low on the east wall of the Fraser Canyon. The recess, though now partly concealed by the growth of talus and alluvial fans, is clearly cut off on the north by rock, and could not have been created by any through-going reach of the Fraser River; instead it seems to have been excavated by glacial action and merely occupied by a back eddy at a high-water stage of the river. Glacial deposits, if present within the recess, are now concealed by younger deposits.
>
> The most significant geological horizon within the unconsolidated beds of this pocket is a layer of sand in which the lowest artifacts have been found. This sand layer maintains a thickness of about 2½ feet over an area of at least 70 feet by 70 feet and is nearly horizontal. No similar occurrence of sand of such extent and thickness is known to be forming today except below high-water level in the Fraser River and for this reason the sand layer is regarded as a former river bar, dating back to the time when flood levels reached this height, some 50 feet above normal high water of today. Significantly, the cultural horizon lies within the sand layer, in part covered by younger undisturbed and sterile sand, hence the artifacts, too, date back to this higher stage of the Fraser River. How long a time was required for the river to deepen its channel to the extent indicated by the lowering of the high-water marks, cannot reliably be judged, but it is likely to represent a considerable fraction of postglacial time.
>
> The beds on which the sand layer rests include in one place up to six feet of sandy silt, in another at least a foot of dirty angular gravel. At two points the sand abuts against bedrock and contains numerous fragments of it, one a boulder about five feet in diameter. The material underlying the sand is, however, not well exposed and mutual relationships are uncertain.

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[1] The site was called to our attention by Mr. August Milliken of Yale, who acted as guide when we first inspected the place in 1956. I wish to thank Mr. Milliken for his invaluable assistance and for the kind hospitality he and his wife extended to us.

The sand layer is covered by angular, poorly sorted gravel with bedding dipping westerly at about 5°, parallel to the upper surface. These gravels are the outermost part of an alluvial fan built by a small, unnamed, intermittent stream flowing off the hillside to the east. A few sand layers interbedded in the westernmost part of the fan deposit may conceivably be high-water sands laid down by the Fraser River, but their very limited extent and thickness permits an alternative suggestion that they have been deposited by the same stream responsible for the associated gravels.

During the two rather brief visits to site DjRi 3, no extensive excavation could be undertaken, but by clearing away sloughed-off material from the base of the south face of the pit it was possible to expose a narrow shelf of undisturbed sand in which a portion of the early occupational horizon was embedded. This stratum, which is stained a greyish black, attains in places a thickness of about one foot and contains numerous small bits of charcoal, an abundance of chipping detritus, and a fair concentration of flaked artifacts.

Sufficient charcoal to make up a sample was collected and submitted to Dr. K. J. McCallum, University of Saskatchewan, for radiocarbon measurement. The results, indicating an age of 8150 ± 310 years for this culture stratum, support the geological evidence of considerable antiquity. The earliest occupation of this site thus appears to fall within the last centuries of the seventh millennium B.C.

The stone implements recovered from this stratum to date include (1) flake tools of irregular shape; (2) purposefully formed scrapers; (3) one projectile point; (4) a cobble chopper, and (5) a flat oval disc.

(1) *Flake tools of irregular shape*

These are small thin flakes, which are unworked except for slight retouching by pressure along one or several edges. The longest dimension of these artifacts ranges from 30 to 47 mm and their thickness from 3 to 7 mm. All are fashioned of argillite, which in two instances is cherty. Three are illustrated on Plate III.

Fig. 1a and b of this plate show a reversible scraper (DjRi 3:39), produced by unifacial pressure chipping along two fairly straight parallel edges of the two flake faces, i.e. the bevel of one scraper edge is on one face and the bevel of the opposite edge is on the reverse face.

The tool (DjRi 3:4), shown in fig. 2a and b, is a flake modified only by the removal of a few small chips along one edge of one face so as to produce a concave scraper (fig. 2a). The retouched area is smoothed and polished through use for a distance of about 15 mm. The flat reverse face shows no such wear.

The face of the flake (DjRi 3:1), illustrated in fig. 3a, shows slight retouching along the convex edge. The resulting bevel intersects with the downcurve of the hinge fracture on the reverse face, producing in effect a double bevel or knife edge. Fig. 3b shows the reverse of the flake with the edge of the hinge fracture on the right and a short scraper edge on the left.

PLATE III

Irregular flake tools from earliest horizon at
Fraser Canyon site DjRi 3.

Fig. 1. Reversible scraper.

Fig. 2. Scraper with concave edge.

Fig. 3. Tool with single and double bevel edges.

PLATE III

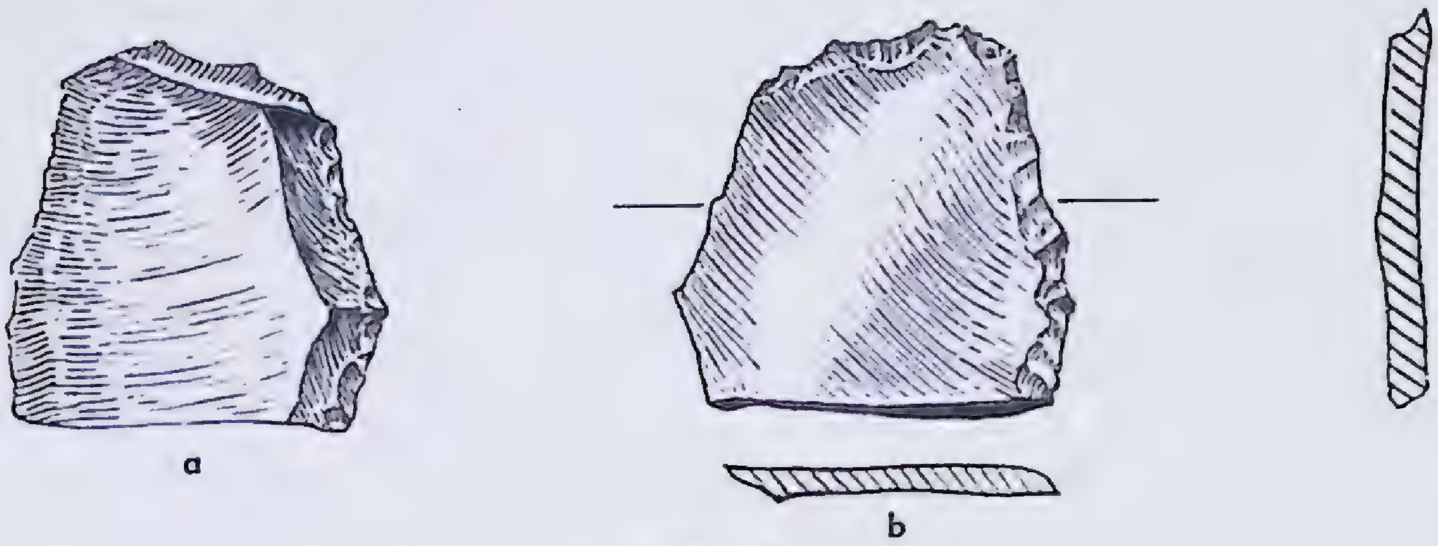


Fig. 1

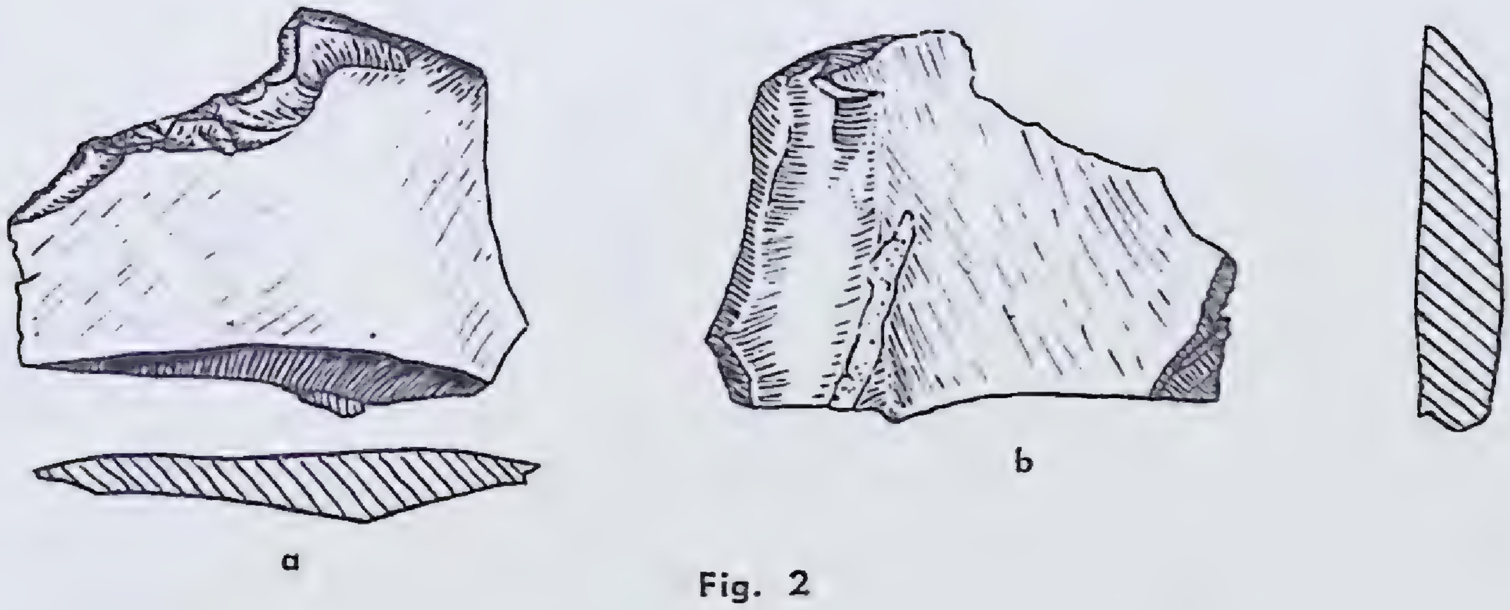


Fig. 2

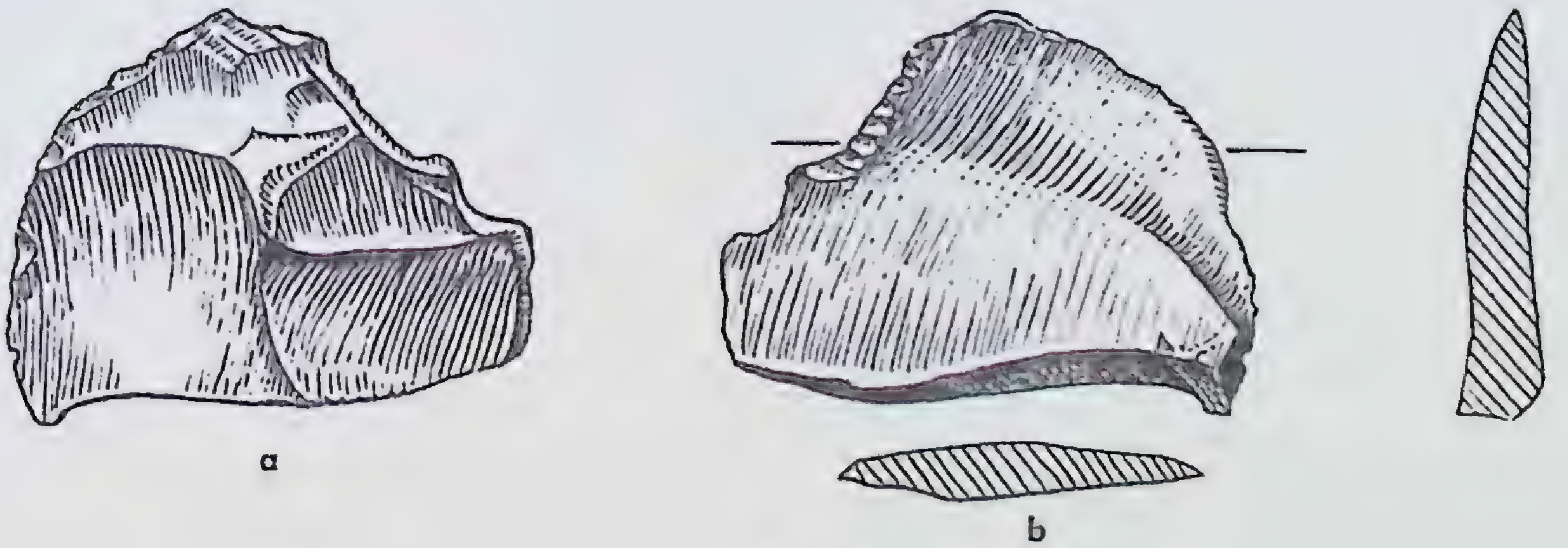


Fig. 3

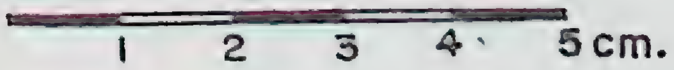


PLATE IV

Chipped artifacts from earliest horizon at
Fraser Cayon site DjRi 3.

Fig. 1. End scraper.
Fig. 2. Side scraper.
Fig. 3. Projectile point.

PLATE IV

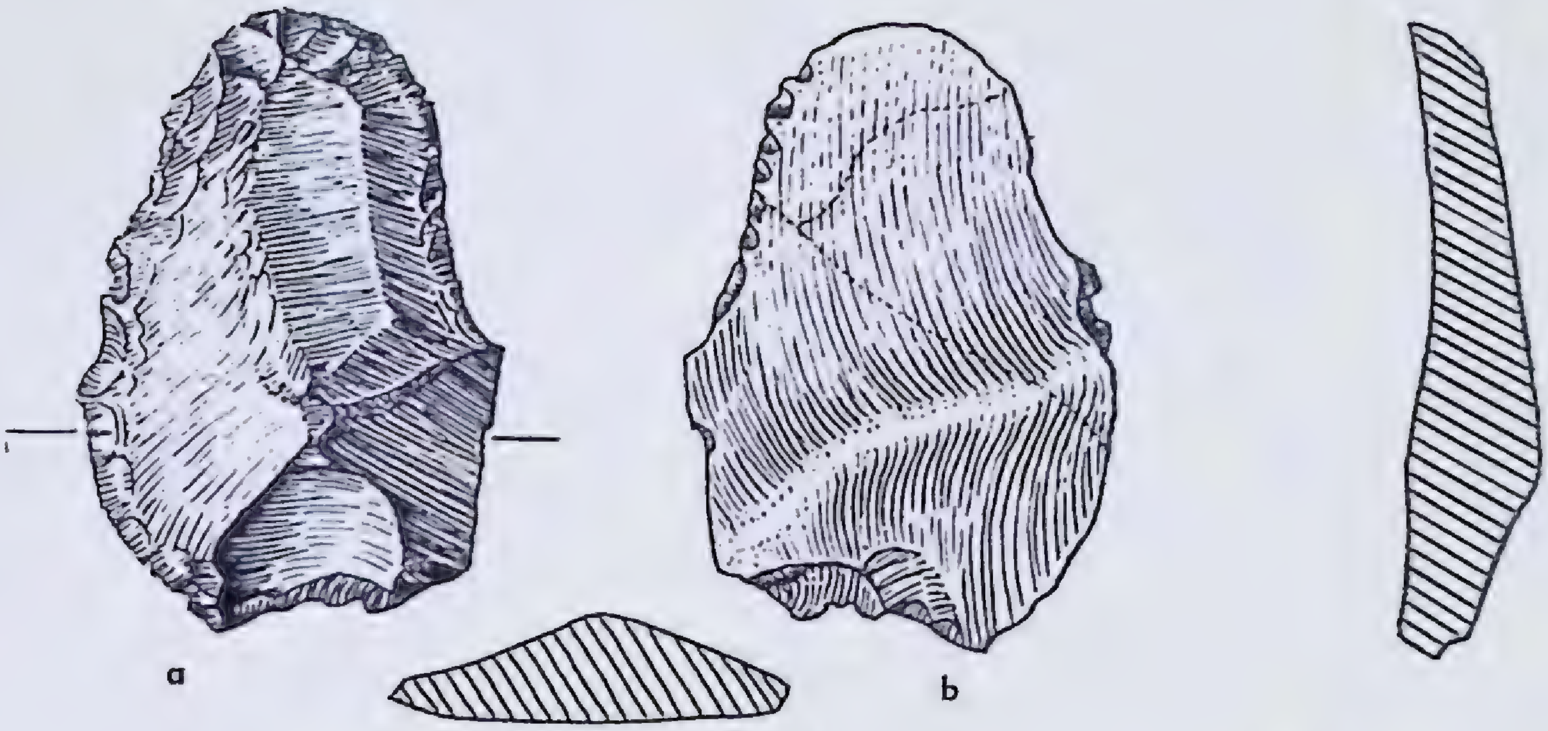


Fig. 1

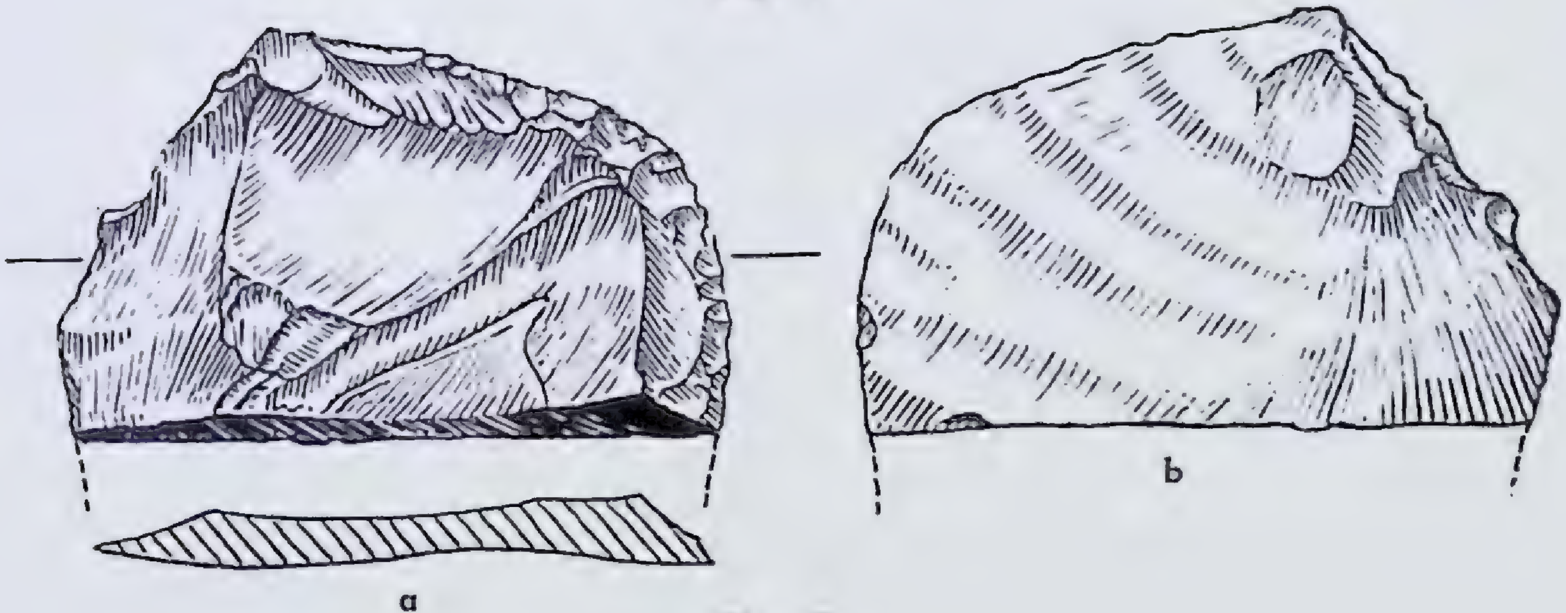


Fig. 2

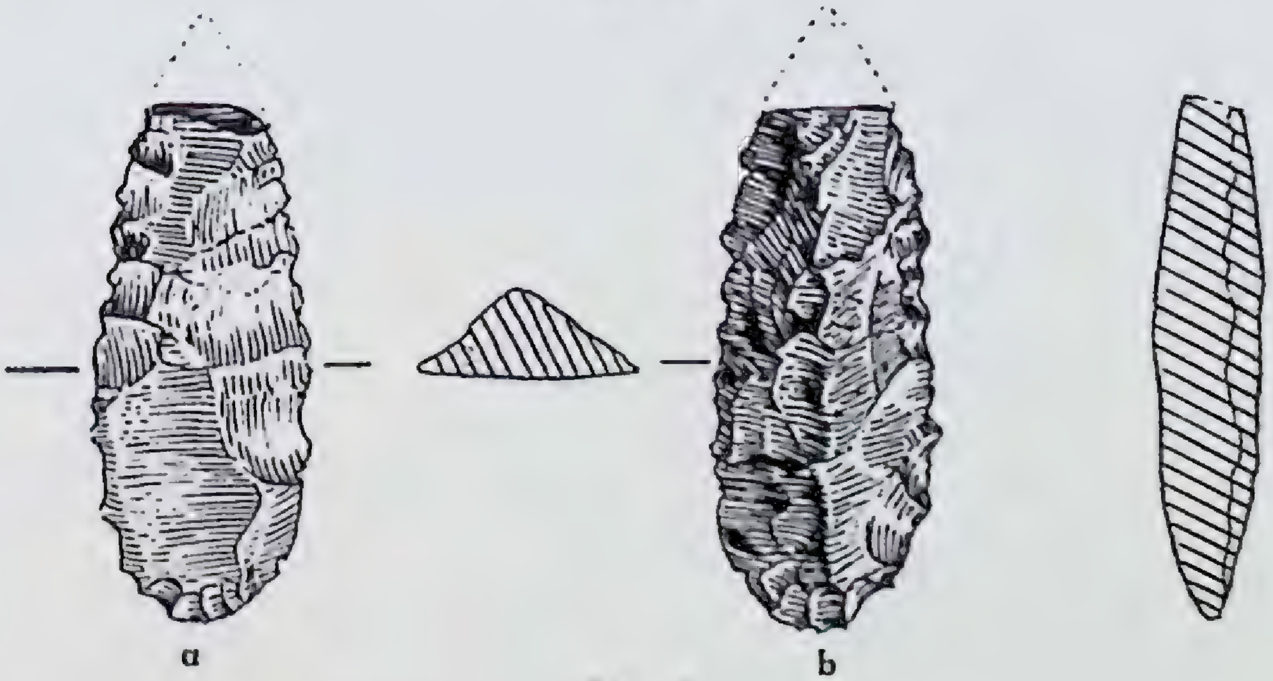
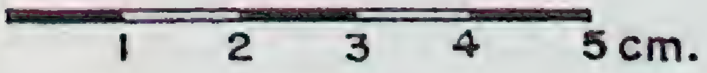


Fig. 3



### (2) *Purposefully-formed scrapers*

These carefully made tools are based on good-sized primary flakes struck from an argillite core.

The artifact (DjRi 3:38), illustrated on Plate IV, fig. 1a, has been given an oblong form by skilful trimming, using both percussion and pressure along nearly the entire edge of one face, except near the base of one side and at the base itself. The main working end, which is that of an end scraper, is almost a perfect semi-circle. The retouch angle is here about 60 degrees. The long, slightly convex left edge may have seen service as a side scraper. The reverse face, as shown in fig. 1b, is unworked except for pressure flaking over a distance of 20 mm along one edge. This part of the multipurpose tool has a double bevel or knife edge. The length of this artifact is 57 mm, the width 35 mm, and the thickness 10 mm.

Fig. 2a and b on Plate IV show the two faces of a side scraper (DjRi 3:41) with a long out-curving continuously flaked edge, which would be even longer if the artifact were not broken. In its present state, the largest dimension of the scraper is 58 mm and the thickness 7 mm.

### (3) *Projectile point*

The only projectile point (DjRi 3:36) recovered to date (spring 1958) is a rather small unstemmed point, shown in fig. 3a and b, Plate IV. With the tip, which is missing, the length would have been about 57 mm. Its width is 18 mm and the thickness 8 mm. In outline the point is a narrow leaf-shape with the base convex and the sides nearly parallel for about one half of the total length. One face is quite flat. The reverse has a marked median ridge so that the cross-section resembles an isosceles triangle. The point is made of hornfels, a raw material which does not chip readily with a neat conchoidal fracture. The rather crude workmanship of the specimen may be, in part, attributed to this fact. Percussion chipping seems to have been used primarily with some secondary retouching by pressure along the edges. High spots along the ridge and one edge are smoothed down somewhat by grinding, especially near the base.

(The editor notes that this is a classic Lerma point).

### (4) *Pebble Chopper* (DjRi 3:52), Plate V, fig. 1.

This is a core tool made by percussion flaking. The crude edge and bevel were produced by striking off large chips from one face of an oval river pebble of cherty argillite. This artifact is probably merely the butt of an originally longer implement which was shortened by repeated sharpening through the removal of additional chips when the edge became blunted. The present dimensions are 62 by 43 by 22 mm. Larger specimens of this type of artifact are common in disturbed material at the same site.

(5) *Oval disc* (DjRi 3:53).

An oval disc of mica chlorite schist, measuring 132 mm by 103 mm by 15 mm, was found associated with artifacts and detritus in the early culture stratum. Since apparently all the stone material where the disc was found was introduced into the fine sand of this stratum by human agency, this specimen evidently was also brought to camp for some purpose. It is not obviously modified, but the edges are smoothed, possibly by rubbing or scraping. Discoidal scrapers of slate are common in some of the more recent sites in the nearby coastal region.

Approximately two feet of sterile sand and gravel separate the deepest culture stratum from the next one above it. Charcoal, numerous chips, and two artifacts were protruding from this next oldest horizon. Its age is not yet known, but a charcoal sample has been submitted for radiocarbon dating. The two artifacts from this level are illustrated on Plate V, fig. 2, 3a and b.

The specimen in fig. 2 is an elongated stone, unmodified except through use. The material is calcareous sandstone. This ready-made tool served a variety of purposes. It was mainly employed as a rubbing stone. Except for the edges, the entire surface shows evidence of abrading. The left side of the face, illustrated in fig. 3 is flattened and slightly hollowed by grinding. Scoring of the surface near the one remaining end and the broken condition of the other suggest use as a hammerstone, a use unsuited to this type of stone. Finally, the two faces are pitted and gouged, as if the artifact had also seen service as an anvil stone. The present dimensions are 120 by 60 by 32 mm.

Fig. 3a and b show a short knife of rather casual manufacture. A series of small chips has been removed by pressure along the edge of one face of a basalt flake so that the scars intersect with larger flake scars on the opposite face. The original surface of the river cobble from which the flake was struck is still present at the butt of the tool. Its dimensions are 52 by 22 by 11 mm.

Above this second oldest horizon, at least three additional occupation levels, separated by sterile sands and gravels, can be distinguished on the vertical face of the cut. Since no ladder was available, it was impossible to inspect them closely. These massive stratified deposits are capped in turn by some two feet and more of occupational remains of Indians who used the site in more recent times. Some of these, no doubt, were Upper Stalo Indians. An old Tait village, called *Esile'u* is situated at the mouth of Siwash Creek, a few hundred yards away. "Today," notes Duff (1952:30-31), "the location of the old winter village is marked by four house-pits . . . There were many fishing-places along this part of the river, part of which is now set aside as I.R. 21." On the west bank of the Fraser, directly across from site DjRi 3, are the remains of another pit-house village of the Tait. Its name, *i'yəm* means "lucky place" for catching salmon (Duff, 1952:30-31). Excavations at site DjRi 3 and others in the immediate vicinity promise to yield a more or less continuous record of human occupancy embracing more than 8,000 years.

PLATE V

Artifacts from Fraser Cayon site DjRi 3. Fig. 1 from earliest horizon, fig. 2 and 3 from next oldest.

Fig. 1. Pebble chopper.

Fig. 2. Abrasive stone, also used as hammer- and anvil stone.

Fig. 3. Chipped knife.

PLATE V

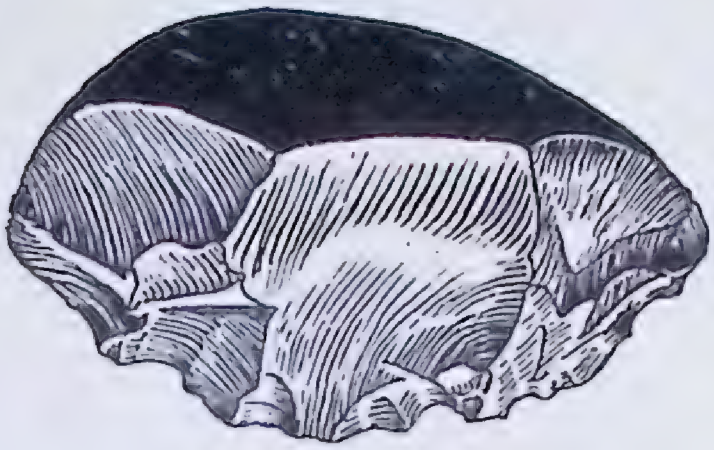
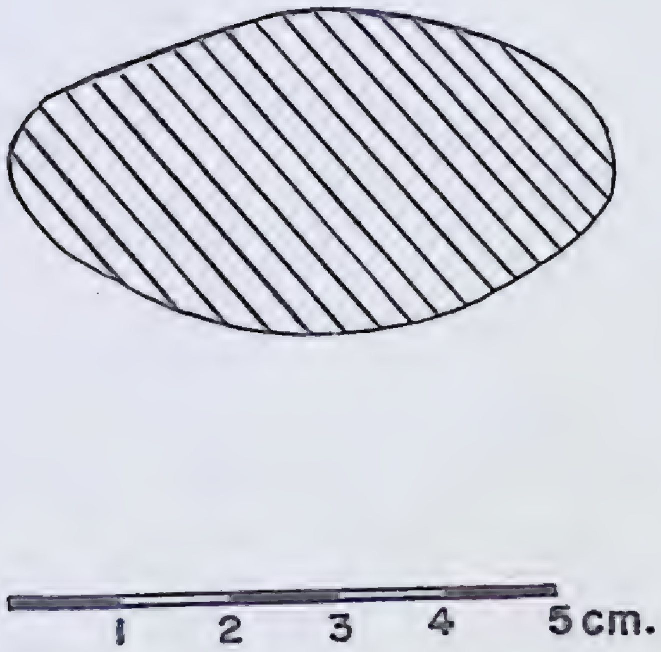


Fig. 1



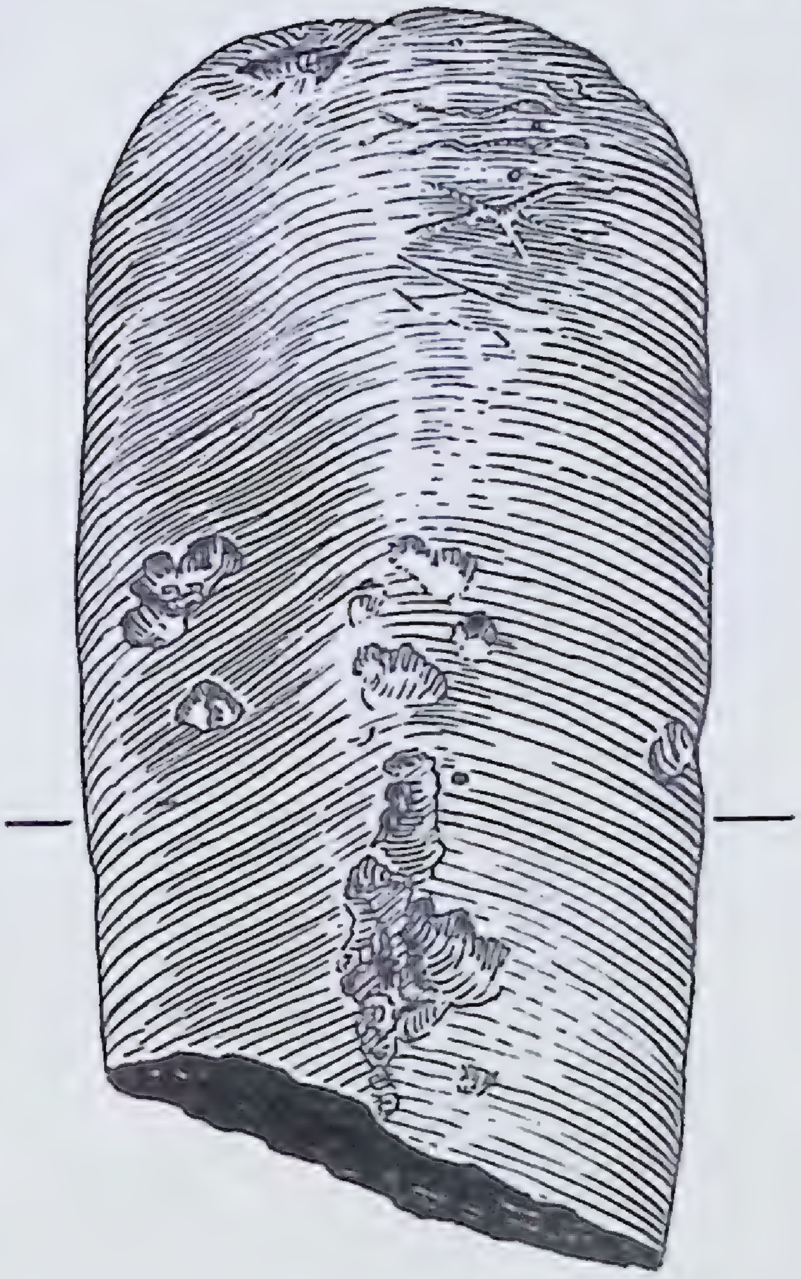


Fig. 2

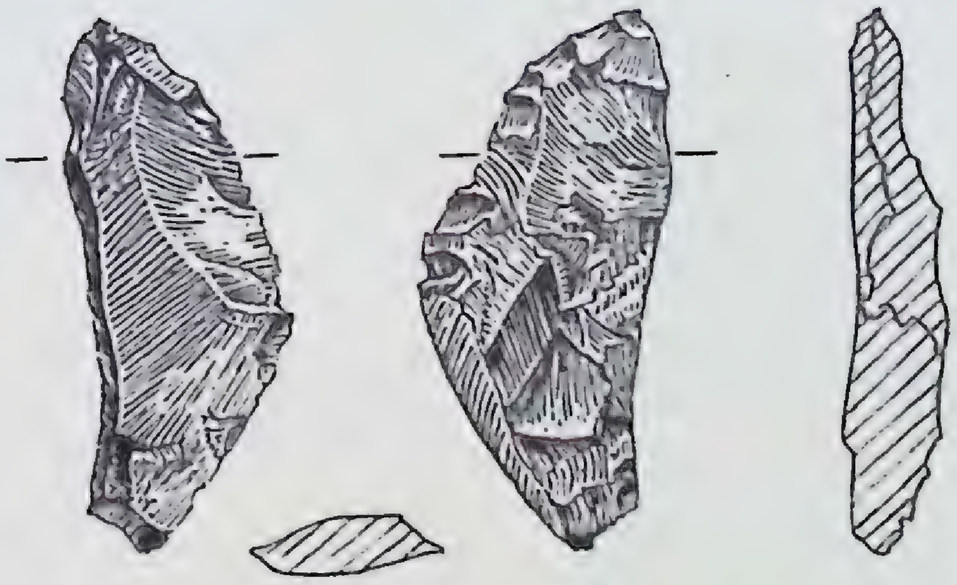


Fig. 3

At the present state of research, comparative studies of only the most tentative sort can be made. The sample from the early occupation level at DjRi 3 is as yet small, and data on other early Indian cultures in the area are still few. Sporadic occurrences of Scottsbluff, Plainview, and even earlier point types in southern British Columbia and Washington have been reported in recent years (Duff and Borden, 1953–54; Osborne 1956). Until such projectile heads are found *in situ* and in association with other materials, it will be impossible to say whether they are intrusive—perhaps transported by wounded animals—or whether they indicate, as Osborne suggests, movements into the Pacific Northwest of early big-game hunters from the Southwest and the Plains as ecological zones shifted in terminal and post-Pleistocene times.

Whatever the solution to this problem, there is no apparent reason to link such manifestations with the early occupation in the Fraser Canyon. Nor are there indications of close affinity between the early horizon at DjRi 3 and the Lind Coulee site, excavated by Daugherty (1956), although the C14 dates of 8150 ± 310 years and 8700 ± 400 years for these sites show them to be nearly contemporary. To be sure, the irregular flake tools from DjRi 3 bear some resemblance to the irregular thin flake side scrapers and knives from Lind Coulee, but as Daugherty (1956:239, 244) rightly points out, these artifacts are so little specialized that they lack sufficient diagnostic value for cultural comparisons. The purposefully formed scrapers at DjRi 3 may eventually offer a better basis for comparative study, when more become available. The same is true of projectile points. The sole point from DjRi 3 equals the smallest of the four complete Lind Coulee points in length, but in all other respects—outline, cross-section, workmanship—there is no similarity between the Fraser Canyon and Lind Coulee specimens.

Differences between the two cultures will probably become more marked as knowledge of the early occupation at DjRi 3 accumulates. Sharp contrasts in the ecology of the two site areas must have produced markedly different economic and cultural specializations. Thus, bison, which were the chief game animal at Lind Coulee, did not roam the mountainous southwestern part of the British Columbia mainland in post-glacial times. Although identifiable faunal remains have not yet been recovered from the Fraser Canyon site, the early occupants, no doubt, hunted the game mammals and birds of their habitat. Circumstantial evidence, however, permits us to infer with reasonable certainty that salmon, which was the main food resource in recent times, also was of primary importance in much earlier periods.

The early canyon site, evidently, was occupied only during certain times of the year. The camping area, as suggested by stratigraphic evidence, was subject to periodic inundation and, if the present behaviour of the river can be taken as a guide, probably from the middle of May to the end of July. The crest of the flood stage is usually reached in early June[1]. Other evidence makes it possible to infer when the site was occupied. Among the charcoal collected from the early level were charred fragments of wild cherry pits. According to Dr. T. M. C. Taylor of the

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[1] Information supplied through the courtesy of Professor E. S. Pretious, Director, Fraser River Model, University of British Columbia.

Department of Biology and Botany, University of British Columbia, the species would almost certainly be *Prunus demissa*, which is still flourishing in the river valleys of the Coast and Cascade ranges. The fleshy, edible fruits of this tree mature in August and September. Significantly, this is precisely the time of year when the main runs of spring and sockeye salmon fight their way up the canyon (Duff, 1952:62), the fish being in their prime as they pass the location of the site.

These data point to the probability that excavations at site DjRi 3 will uncover evidence of an early occupation similar in character to that of the Five Mile Rapids site on the Oregon side of the Columbia River immediately east of the Cascade Mountains. Here Cressman (1956) reports the occurrence of tremendous numbers of salmon vertebrae in levels dated by radiocarbon as having been occupied from 7,000 to 9,000 years ago. This important discovery, combined with the indirect evidence from the Fraser Canyon site, leaves no doubt that salmon fishing was well established more than eight millennia ago in the Pacific Northwest when Early Lithic hunters were still stalking big game in other parts of the continent. The Salmon Area as one of the major food areas of the New World had begun to take shape.

The demonstrated presence in the early post-Pleistocene period of Indian sites along the lower course of the two major salmon streams of the Pacific slope has an important bearing on hypotheses regarding the origin and development of Northwest Coast culture. The rugged and shredded coastline of southeastern Alaska and British Columbia precludes the possibility of population movements on foot from the north via the coast. Since we cannot assume either, the existence at such a remote period of boats capable of navigating the rough coastal waters, we must conclude that the early Indians who occupied the Five Mile Rapids and Fraser Canyon sites came to these localities via interior routes and, to be sure, not necessarily from the north.

The findings at these sites lend support to Kroeber's hypothesis (1923; 1939) which views the several areal patterns of Northwest Coast culture as having come into being when groups of interior Indians made their way down the river valleys to the Pacific seaboard, gradually modifying their economy from the exploitation of inland to coastal and marine resources. A striking illustration of such ecological adjustments is provided by the presence in the early levels at Five Mile Rapids of seal bones. "This," comments Cressman (1956:6) "is of considerable significance, for it shows that these Indians had developed the art and habit of taking marine animals, in addition to fish, for food. Adaptation to a seacoast economy could mean more of the same and not a complete change."

Advanced stages of adaptation to the coastal environment, with the basic patterns of Northwest Coast culture well blocked out, have been revealed by excavations in the earliest known sites of the Fraser delta region (Borden, 1950; 1951; n.d.) A new C14 date of 2900 ± 170 years for the Marpole site and the dates of 2430 ± 163 years and 2450 ± 160 years for Locarno Beach and Whalen I, respectively, suggest that these stages had been reached early in the first millennium B.C., hinting at a considerable period of prior development. A gap of more than 5,000 years separates these ancient maritime cultures of the Gulf of Georgia from the period of the early occupation in the Fraser Canyon, a hundred miles inland. Excavations at site DjRi 3 and at other sites along the lower course of the river may be expected to fill part of this gap and to disclose intermediate stages in local cultural evolution. While influences from other areas no doubt stimulated this process, recent suggestions regarding the controlling part that the maritime cultures of the Eskimo-Aleut are said to have played in the emergence and rise of Northwest Coast culture (Drucker, 1955; Chard, 1956) must be taken with caution. The initial phases of Northwest Coast culture evidently ran their course at a much earlier time than suspected, and little is known as yet about the problem of early Eskimo-Indian relationships. In recent centuries the main culture flow was obviously from the Northwest Coast to the Eskimo. It will not be surprising to find that the Northwest Coast was also the more important centre of cultural elaboration and diffusion in much earlier periods.

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# SOME LATE SITES IN THE OLDMAN RIVER REGION, ALBERTA

By Richard G. Forbis

Glenbow Foundation

## INTRODUCTION

In the spring of 1957, I was informed through Dr. Ernest Reinhold, University of Alberta, of a site along the Oldman River, northeast of the town of Coaldale. Immediately afterward, I went to Coaldale to see Jacob Hubert, who had reported it to Reinhold. Hubert escorted me to the Ross site (in the Borden system, DlPd-3) and to two other nearby localities—the Upper Kill (DlPd-1) and the Lower Kill (DlPd-2).

The Ross site was originally discovered by David Quapp of Coaldale, who, like Hubert, takes a vital interest in archæology and its problems. The Foundation was fortunate enough to secure the assistance of Quapp during the summer of 1957. Arthur and John Quapp, Norman and Edward Richards, all rendered valuable service during their tenure as employees of the Foundation. I will not forget the fine co-operation I received throughout the summer from Timothy J. O'Leary of the Department of Anthropology, Columbia University.

The Ross site received its name from the landowner. Cleve Ross of Chin, Alberta. Freely and openly, he granted us permission to excavate on his property. The Davidson family allowed us to dig at the buffalo kills. For helping to expedite digging, as well as for their generous hospitality, we owe the late Mr. C. R. Daniel, Jr., and his wife of Lethbridge, and Mr. and Mrs. Ivan Meyers a great debt. Herb Johnson of Chin provided us with much useful information. I hope the many others who contributed directly and indirectly to the success of our field work will accept my appreciation for their part in it. Especially, I would like to acknowledge my indebtedness to J. D. Herbert, formerly Executive Director of the Glenbow Foundation, for the enthusiasm and encouragement which made all obstacles seem simple.

## THE SITES

The Ross site lies on a bottom along the south bank of the Oldman River, about three miles above the confluence of the Little Bow River (Plate I). Substantial undercutting of the bank exposed three occupation layers containing hearths, faunal remains, and cultural debris. The top layer runs continuously some 670 feet along the cutbank; while the lower two layers, not so darkly stained, are intermittent and less extensive. The occupation layers have been numbered—I, II, III—from bottom to top.

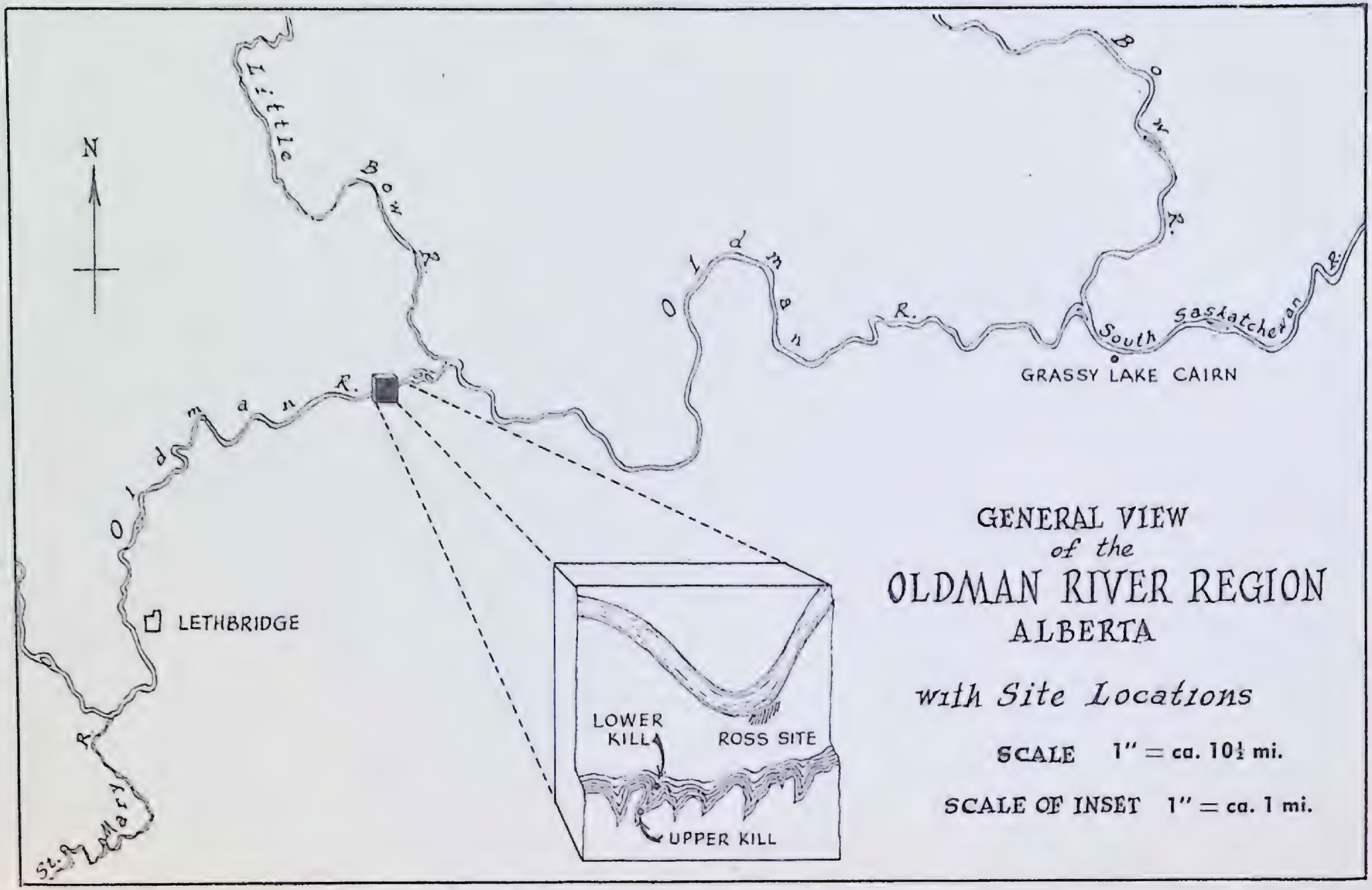


Figure 1. General view of the Oldman River Region, Alberta, with site locations.

Four feet of unconsolidated, stratified sands and gravels topped the uppermost occupation layer. At the location excavated, they were removed with power machinery. There is no evidence that the overburden has been in place for any considerable time. Six inches of capping sands were deposited during a flood in the early 1950's. Another flood is reported to have inundated the area fifty years earlier. As there are five strata overlying the top occupation layer (III), Layer III might be assigned an age of 250 years, or about A.D. 1700 if each were to average fifty years. This extrapolation is, of course, highly tenuous.

The cultural deposits are always found either below or embedded in a clayey silt bed; and all deposits below Layer III consist either of silt or sand, suggesting a low competency for the stream and little turbulence during the deposition of these sediments. As a result, cultural deposits lying on the surface at the time of deposition remained undisturbed. Above the silt covering the top occupation layer, however, the sands and gravels represent generally more turbulent deposition. Any cultural remains which may have been lying in the path of the flood could hardly have withstood the impact and would have been washed away.

The general location of the Ross site has a number of advantages for a primitive population, especially during the winter. Frequent chinooks serve to warm the country intermittently during the winter, thus opening the grasslands for the buffalo to graze and be hunted. No doubt the adjacent groves of cottonwoods were an attraction in the winter, providing a source of fuel, as well as shelter. The river was a convenient source of water. But while the Ross site may have been primarily a wintering place, the nearby draws are thick with berry bushes (saskatoon, chokecherry, gooseberry) known to have attracted native plainsmen in historic times. In the summer, they provide the berries, which were an important ingredient in pemmican.

The two nearby buffalo kills provided the other basic ingredient for pemmican. The Lower Kill is at the foot of a draw about one-half to three-quarters of a mile southwest of the Ross site. It seems probable that the spring which still trickles at the head of this draw continued to the foot in prehistoric times and served as a watering place for small herds of bison. Once committed to the draw, the animals could be attacked easily and killed before they could escape. Possibly a pound was constructed along the lower slopes to restrict the opening. It is the Lower Kill, now badly looted, that shows the greatest similarity, archæologically, to the Ross site.

DlPd-1, known as the Upper Kill, is at the head of the same draw, a few hundred yards above the Lower Kill. There is no declivity over which the bison might have been driven. The kill occupies the channel of the draw, about fifty feet below the prairie level. The slopes are fairly steep; and bison driven into the draw might well lose their footing. But very likely, as with the Lower Kill, the animals were slaughtered while they watered. Although projectile points are abundant at the Upper Kill, only a little evidence (from tests on the prairie level) was recovered to indicate a camp-site which may have been occupied in conjunction with the kill.

The Grassy Lake Cairn lies on the prairie level overlooking the South Saskatchewan River, about two miles below the confluence of the Bow and Oldman rivers. Immediately to the west, there is a spider-like medicine wheel; and still farther to the west, for a distance of about one-half mile, some two hundred tipi rings stretch along the edge of the bench (Figure 2).

George M. Dawson reported the Cairn in 1884, saying it "is regarded with much veneration by the Indians, who call it O-max-ŏkotok, but I have been unable to discover any reasonable explanation for its origin or meaning" (p. 20). The Indians referred to, from their use of the word "ŏkotok," were no doubt Blackfoot-speaking. A Blackfoot (Blood) story concerning the Cairn was obtained in 1957 by Hugh Dempsey of the Glenbow Foundation from the late John Cotton through Senator James Gladstone acting as interpreter. Mr. Cotton referred to the Cairn as *Eet-sin'aksin* (scraped earth). In effect, the story tells of a little boy who fell out of a dog travois while the Bloods were moving camp. He was found by a bear who looked after him and raised him. When the boy was about six, a South Piegan rescued him and returned him to his people. In commemoration of this event, a large pile of rocks was built over the bear's den. This was a long time ago.

For many years after Dawson saw it, the Cairn remained undisturbed. But beginning in the first decades of the twentieth century, looting began on a small scale. It culminated in a full-scale, unsystematic attack in 1957, only a few weeks before a field party from the Glenbow Foundation arrived on the scene.

I would like to express my deep appreciation to Mr. Morris Nelson of Burdett for granting permission to excavate on his land. After excavation of undisturbed fringes, the field party restored the Cairn, leaving in place near the Cairn the buried rocks which formed patterns suggestive of the arms, legs, and tail of a turtle, the Cairn itself representing the shell. The effigy figure to the immediate northeast of the Cairn might be part of a composite mosaic with the turtle.

## CERAMICS

Since Dr. James B. Griffin of the University of Michigan Ceramic Repository is presently completing a report on pottery from the Ross site, the Grassy Lake Cairn, and other Alberta localities, I will confine myself to general remarks on major types and on particular sherds which appear to provide a link between some components.

The vessels are jars; and from the absence of flattened or pointed basal sherds, they can provisionally be assumed to have had rounded bottoms. At the opening, they are generally about 150 to 175 mm (or some 6 to 7 inches) in diameter; and being squat, they probably stood no higher. The distance from lip to shoulder, where maximum width occurs, varies from about 50 to 90 mm. Rims, which are always insloping, may be thickened to varying degrees at the lip. Shoulders are usually steeply sloping or carinate. Body sherds are characteristically thick, ranging from 6 to 10 mm; very seldom they are only 4 mm. Rim and shoulder sherds are often a few millimetres thicker than body sherds and may be up to 18 mm thick.

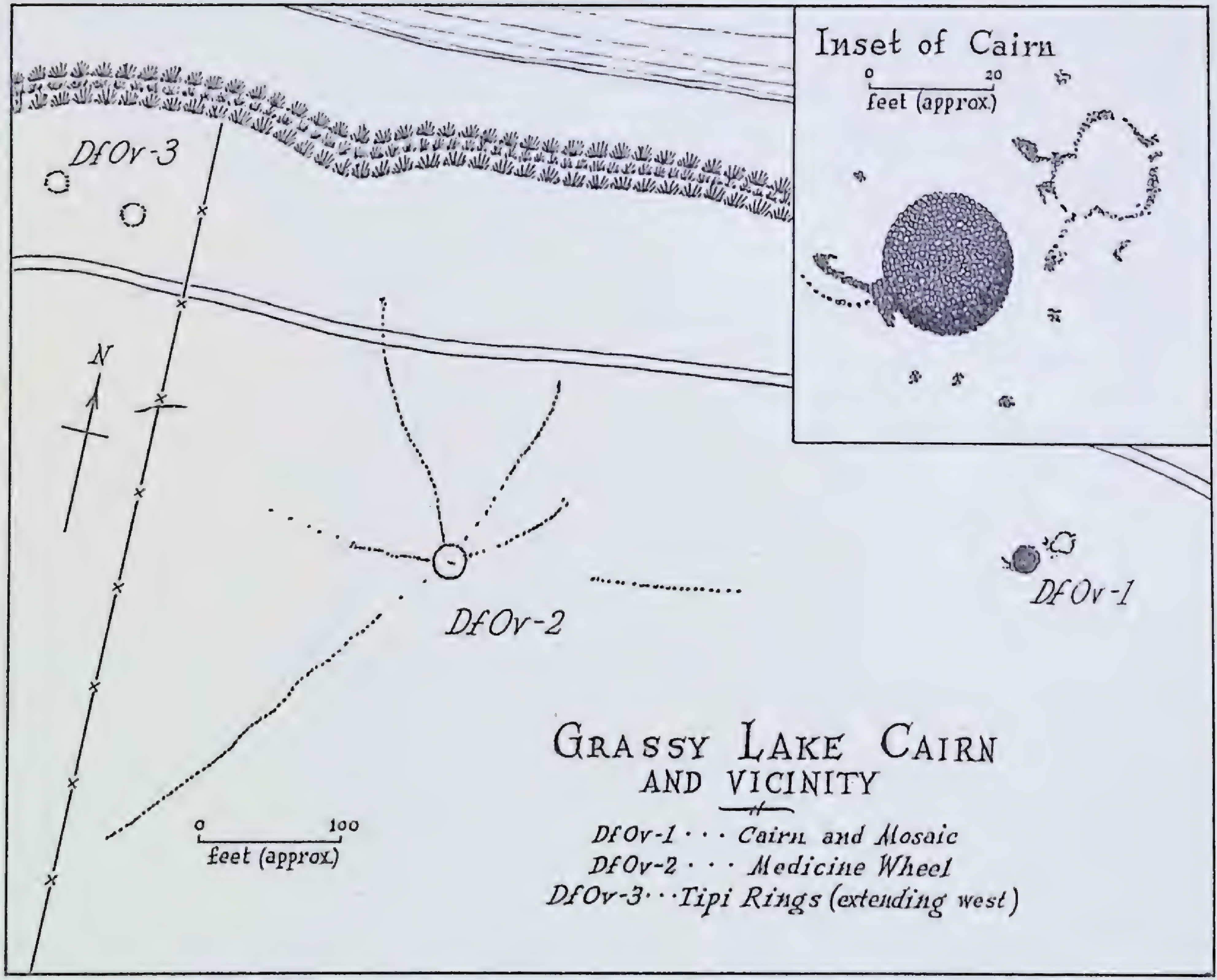


Figure 2. Grassy Lake Cairn and vicinity.

With respect to technological details, only minor differences separate the sherds. The method of manufacture appears to have been mass modelling. The paste, varying in colour according to conditions of preservation, is almost uniformly a medium to dark grey. Exteriors may be oxidized to a light buff. Interiors, frequently coated with charred organic material, are, like the cores, generally darker than the exterior. Both interiors and exteriors tend to be rough and uneven, resulting in considerable variation in thickness. Both surfaces have a moderately coarse feel. The paste is porous and flaky, in some cases almost laminated. While the core is sometimes compact, usually it is crumbly, especially where clumps of temper are not adequately bound with clay. Temper consists of sharp, angular particles of quartz and feldspar mixed with lesser amounts of rounded grains. Temper is usually from 1 to 5 mm in diameter. Hardness ranges from 3 to 4.

Surface treatment is variable, although most sherds are cord-roughened. Elements are always vertical. Only a few sherds from Layer III of the Ross site and from the Cairn show any definite evidence of a twisted cord. Other methods of surface treatment include fabric-impressing, check-stamping, and smoothing. Decoration is limited to punctation of the rim and shoulder, and rarely incision of the lip. Two rim sherds found on the beach at the Ross site are exceptions to the rule. One has wrapped-rod impressions on the rim running parallel to the lip; the other has a series of hollow cylinder punctations immediately below the overhanging lip. No lugs, handles, or other constructional features were noted on sherds from the Oldman River region.

*Layer I.* Perhaps the finest sherds, technologically, are from Layer I of the Ross site (Plate VII, fig. 1). Surface treatment consists of smoothed but broad and rounded cord-impressions. They are neatly spaced at the rim, more irregular near the shoulder, and are obliterated by smoothing on parts of the body. The thickened lip is flat; and the shoulder rounded. Of 34 sherds, three are rim sherds, all of one vessel.

*Layer II.* Probably all from the same vessel, these sherds are distinguished by well-defined rims and shoulders which have been pinched with the thumb and forefinger to produce continuous scalloping. Apparently the exterior was paddled; but most indications are obliterated by rough smoothing. The sherds are thick and crumbly owing to an excessive amount of temper. The lip is flat. Of 179 sherds, nine are rim sherds.

*Layer III.* Of the several forms from Layer III, one is nearly identical to the Layer II form (Plate VII, fig. 2). It is thinner, contains less temper (and is less crumbly), and is more evenly smoothed. A similar sherd is reported from a site in Montana, designated 24TL26, on the banks of the Marias River; many other artifacts from this site bear a strong resemblance to the Ross site (Cooper, 1955, Plate 5A). One sherd from the Cairn is pinched along the rim. Ten of the 23 sherds established as belonging to this pot in Layer III are rim sherds. This high percentage of rim sherds stems from the difficulty of determining whether 238 body sherds belong to this or the following vessel.

A second vessel from Layer III has a punched rim and shoulder (Plate VII, fig. 3). The punctations have been formed by holding the pot upwards and driving a finger of the right hand, held horizontally, into the rim and shoulder at regular, closely-spaced intervals. In places along the rim, these punctations are absent, being replaced by three diagonally incised lines on the lip. The neck has clearly delineated cord impressions, random in placement and separated by flat ridges. Below the shoulder, extensive smoothing has nearly eliminated the impressions. The lip is slightly thickened and flat. Of 50 sherds, 17 are from the rim.

Fabric-impressed vessels from the Cairn and Layer III are virtually indistinguishable from each other (Plate VII, fig. 4). As Wedel says of comparable sherds from Ethridge, Montana (again in the Marias drainage): "The exterior surfaces have been strongly impressed by some fabric that has left a dimpled texture, which occasionally somewhat suggests knotting or a net impression" (1951, p. 131). The lip is flat and slightly thickened; shoulders are usually weakly sloping. Of 32 sherds from the Cairn, seven are rims. Of 101 sherds from Layer III, 15 are rims.

A fourth form from Layer III presents a number of unique features not otherwise noted on the Oldman River (Plate VII, fig. 5). While globular, it lacks the characteristic shoulder; the rim, thickening slightly at the lip, is strongly everted. No attempt was made to smooth the extreme fabric impressions. With regard to technological features, the paste is extremely flaky and friable, frequently spalling on the exterior. Temper consists of large particles (3 to 10 mm) of crushed granite, and it often shows through the exterior surface. Firing clouds are clearly evident. Eleven of 73 sherds are rim sherds.

One sherd from Layer III calls for special mention because of its resemblance to a specimen from 24TL26 in Montana (Cooper, 1955, Plate 5A). In an experimental attempt to duplicate the surface, Cooper found that a basket impression most closely approximated the effect.

*Cairn.* In addition to the previously discussed fabric-impressed pottery from the Cairn, where it forms the majority of sherds, three other kinds of surface treatment are present: check-stamping, cord-roughening, and smoothing. Technologically, they differ little from sherds at the Ross site. In shape, the vessels are insufficiently represented to draw distinctions with the usual Ross site ware, if there are any.

Check-stamped sherds are, as far as I know, unique for the area (Plate VII, fig. 6). None is reported by Wedel in the samples he described from north-central Montana, although fabric-impressed, cord-roughened, and smoothed sherds were found there. One of the check-stamped sherds from the Cairn appears to have been shouldered. The rim is absolutely straight on the exterior; thickening at the lip is a result of gradual expansion of the inner surface. Of nine sherds, four are rims.

Cord-roughened pottery from the Cairn is frequently spalled. Extremely thin slabs (a slip ?) may break away from the exterior which will retain coarse impressions. A few unspalled sherds provide clear evidence of a twisted cord. The impressions may be cross-hatched; one sherd from Layer III of the Ross site agrees in this respect. The rim is straight and the lip flat. Of 18 sherds, two are rims.

Twenty smoothed sherds from the Cairn are all body sherds; one is a rounded shoulder. A few have indications that, prior to smoothing, they were cord-roughened or check-stamped; but others make it clear that smoothing was a distinct method of surface treatment. The few smoothed sherds from Layer III of the Ross site all bear indications of previous surface treatment and are probably outliers of cord-roughened sherds.

*Ceramic summary.* Pottery corroborates certain relationships between some components in the Oldman River region and suggests relationships with two localities in Montana—the Ethridge site and Smithsonian Institution River Basin Survey site 24TL26, both in Toole County.

Pinched rim and shoulder vessels would seem to link Layers II and III of the Ross site in a developmental sequence. Similar sherds were found in the Cairn and at 24TL26. The tie between Layer III and 24TL26 is further corroborated by sherds thought to be basket-impressed. A close relationship is indicated between the Cairn and Layer III in that they share fabric-impressed vessels identical in shape; and they share a few sherds with cross-hatched cord impressions, the impressions providing evidence of a twisted cord. A few smoothed sherds from Layer III may be comparable to smoothed sherds from the Cairn.

A still closer agreement exists between the Cairn and the Ethridge site. All three methods of surface treatment known from the Ethridge site are found in the Cairn. Since European trade goods occurred in surface collections from both sites and are absent in other components, I am strongly inclined to regard both sites as protohistoric, despite the absence of a proved association between the trade goods and the pottery.

## WORK IN CHIPPED STONE

*Seriation of projectile points.* Seriation of points from the Ross site indicates certain trends suggesting that the Cairn and Lower Kill occupy a time period nearly contemporaneous with, but later than, Layer III of the Ross site. The trends indicated at the Ross site are, by and large, an increase in the percentage of notched points from Layers I to III, and a decrease in the popularity of triangular, unnotched points (Figure 3).

The following procedure was adopted in producing the seriation chart. All points from the Ross site, the Cairn, and the Lower Kill were lumped together. They were subdivided according to a number of features: base shape, notching, cross-section, edge outline, edge regularity, size, thickness, and length-width ratio. This subdivision resulted in a number of

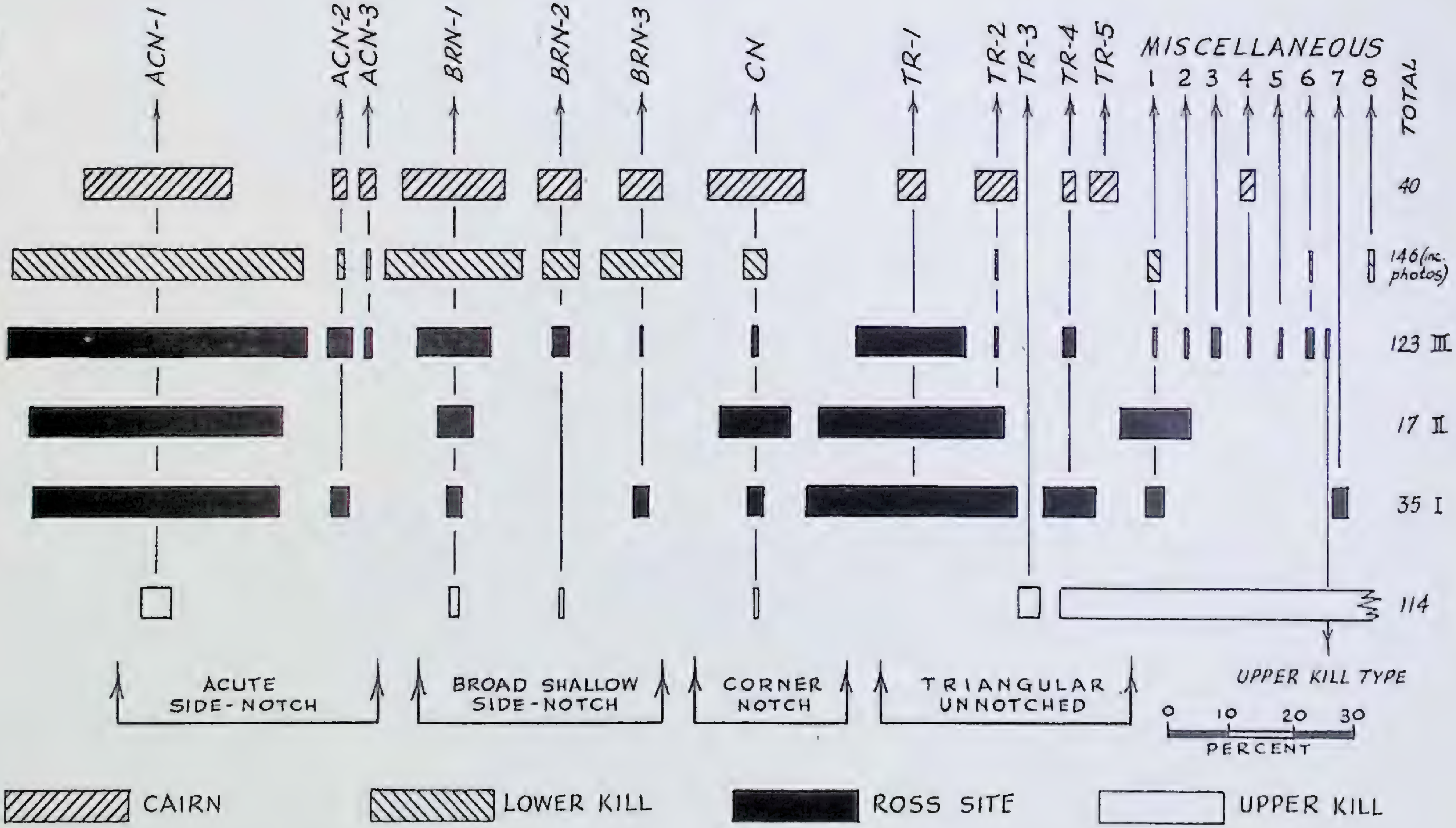


FIGURE 3. Seriation graph of projectile points from the Oldman River region. Note solid black bars showing percentages of points from the Ross site from bottom (oldest) to top (most recent) and indicating the progressive preference for notched points (ACN and BRN) over triangular, unnotched points (TR).

## PLATE I

Projectile points from the Oldman region.

Fig. 1–8. Acute side-notch, (ACN–1, 1–6; ACN–2, 7; ACN–3, 8).

Fig. 9–14. Broad, shallow side notch (BRN–1, 9–11; BRN–2, 12, 13; BRN–3, 14).

Fig. 15–17. Corner-notch (CN).

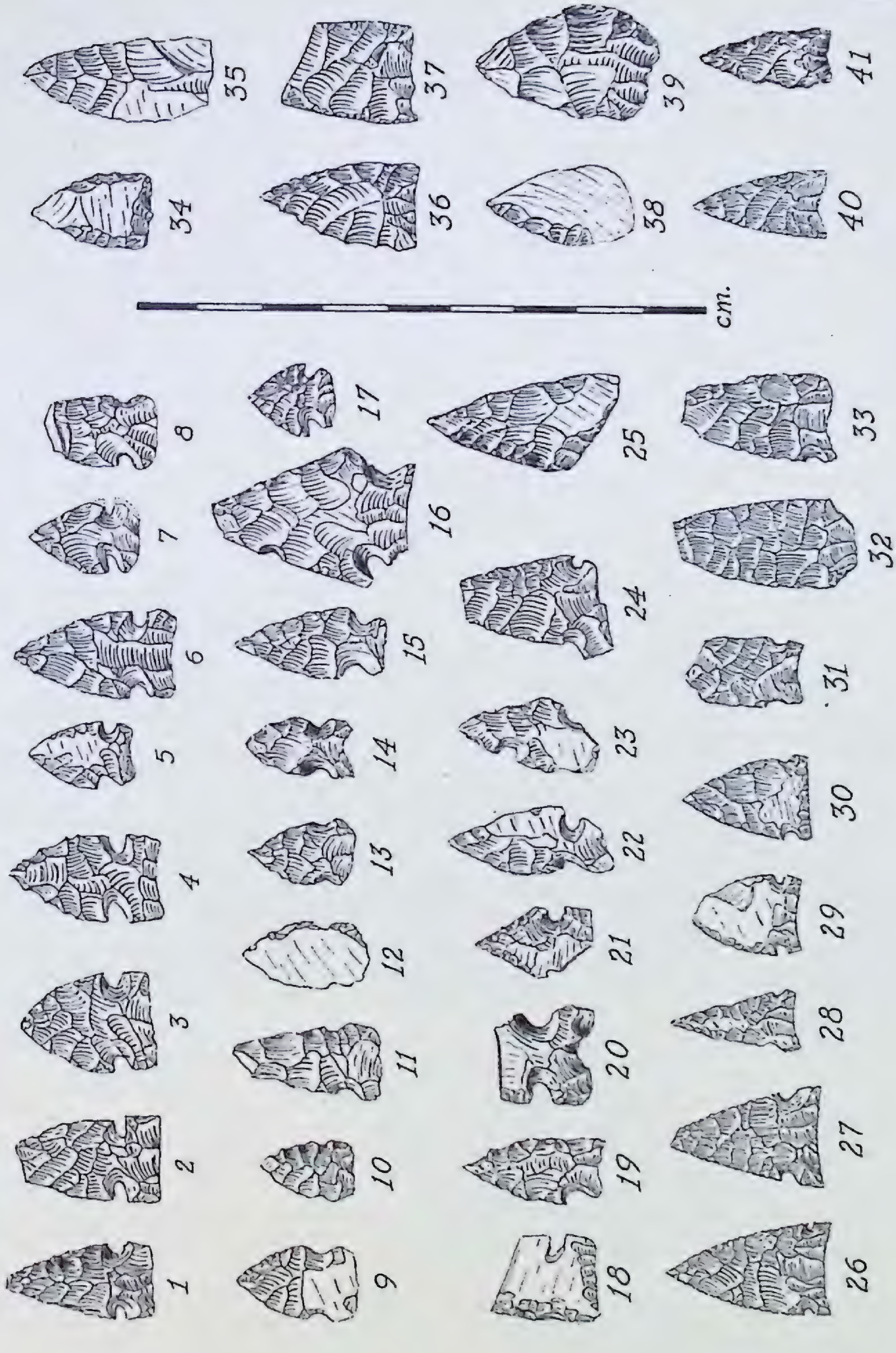
Fig. 18–25. Miscellaneous (MS–1, 18; MS–2, 19; MS–3, 25; MS–4, 20; MS–5, 21; MS–6, 22; MS–7, 23; MS–8, 24).

Fig. 26–33. Upper Kill type.

Fig. 34–41. Triangular, unnotched (TR–1, 34–37; TR–2, 41; TR–3, 40; TR–4, 38; TR–5, 39).

From Ross site Layer 1: 3,4,14,23,38; Ross site Layer II: 18; Ross site Layer III: 1,5,6,7,11,15,18,19,20,21,22,25,34,36,37,41; Grassy Lake Cairn: 2,12,16,17,35,39; Lower Kill: 8,24; Upper Kill: 9,13,26–33,40.

PLATE I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cm.

point classes. The percentage of points of each class for each layer of the Ross site was determined by dividing the number of each class by the total number of points in each component. Bar graphs were drawn to reflect the percentages of the various classes in each component and then were placed in stratigraphic order. It was hoped that the Ross site, with its stratification, would reveal trends in the form of normal curves. It did. Once the curves were roughed out, some recombinations of the point classes allowed the profiles to be sharpened into their present form.

Then bar graphs showing the percentages of point classes from the Lower Kill and Cairn were prepared. (Photographs of specimens from the Lower Kill in collections of amateur archæologists were used to augment the 12 specimens in the Glenbow Foundation; the total sample is 146 points.) With few exceptions, the bar graphs for the Cairn and Lower Kill fit best above Layer III of the Ross site, suggesting a more recent age for these components. The temporal relation between the Lower Kill and Cairn is not clear.

It seems highly probable that the Lower Kill was exploited over a considerable time span, perhaps throughout the entire course of occupation of the Ross site and later. Only scant information is available on possible stratification, and the site is so pitted by looting that there is little likelihood of finding an undisturbed sector. Consideration of the bar graph for the Lower Kill must be tempered with the thought that this component may include points of a fairly wide time range; nevertheless, the almost total absence of unnotched points and the abundance of notched points suggest that the Lower Kill was most intensively used at a time later than the Layer III occupation of the Ross site.

The Cairn poses a similar problem. Having been destroyed, as far as stratification goes, before a field party from the Glenbow Foundation reached it, there appears now to be no way to segregate artifacts into those which accompanied the building of the Cairn, and those which may be offerings left by natives in later times. Careful excavation in the undisturbed fringes of the Cairn yielded points of all major varieties shown in the seriation graph, but not in sufficient quantities to permit separate seriation. Most of the points, and other artifacts from the Cairn, were recovered on the surface and in the backdirt left by the looters.

In view of the obvious differences between the majority of projectile points from the Upper Kill and those from the other sites under consideration, they were kept separate. Once the bar graphs for other components were completed, points from the Upper Kill were examined to determine whether some might not better be included with types established for the other components. About 10 per cent were found to conform in this respect; some 90 per cent, however, clearly belong to the Upper Kill type, even though this type includes some variation. The 10 per cent, recovered from two test pits dug in 6-inch levels, was scattered throughout the cultural deposit of the Upper Kill.

TABLE 1.—SUMMARY OF ARTIFACTS COLLECTED

| | Ross site | | | | | |
|---|---|---|---|---|---|---|
| | III | II | I | Cairn | Lower Kill | Upper Kill |
| WORK IN CHIPPED STONE | | | | | | |
| Bifaces: | | | | | | |
| Projectile points | 123 | 17 | 35 | 40 | 12 | 114 |
| Pointed knives | 9 | | 2 | | | 1 |
| Round-end knife | | | | | | 1 |
| U-shaped knife | 1 | | | | | |
| Thinly pointed awls | 8 | 1 | 1 | | | |
| Broad-nosed awls | 1 | 2 | | | | |
| Stemmed (notched) drill | 1 | | | | | |
| Drill points | 3 | | | | | |
| "Woodland awls" | 1 | | 3 | | | |
| Chisels | 7 | 2 | 4 | 1 | | |
| Large bifaces | 2 | 1 | | 2 | | |
| Projectile point fragments | 96 | 11 | 11 | 16 | | 53 |
| Other biface fragments | 44 | 7 | 18 | 22 | | 6 |
| Bifacially chipped flakes | 30 | 5 | 10 | 7 | | |
| Petrified wood flake knives | 39 | 16 | 15 | 8 | | |
| Unifaces: | | | | | | |
| End scrapers | 29 | 13 | 10 | | | |
| notched along edge | 5 | 1 | | | | |
| with "graver" spurs | | 1 | 1 | | | |
| lamellar flakes | | 1 | | | | |
| with awl-like stem | 1 | | | | | |
| Ovoid uniface (small) | | 1 | | | | |
| Subrectangular uniface (small) | | | | 1 | | |
| Gravers (American type) | ? | 1 | | ? | | |
| Spokeshaves | 7 | 2 | 1 | 2 | | |
| Push-planes | 7 | 1 | 7 | 2 | | 1 |
| Uniface fragments | 13 | 2 | 3 | 3 | | |
| Unifacially chipped flakes | 46 | 12 | 15 | 9 | 1 | 13 |
| WORK IN HEAVY STONE | | | | | | |
| Choppers, pebble | 3 | 5 | 3 | | 1 | |
| Choppers, double end pebble | | 1 | | | 1 | |
| Pounders | | 3 | | | | |
| Spall scrapers | | 2 | 2 | | | |
| Anvil | 1 | | | | | ? |
| WORK IN GROUND STONE | | | | | | |
| Shaftsmoothers | 1 | | 3 | | | |
| Pipes (fragments): | | | | | | |
| steatite | | | | 49 | | |
| catlinite | | | | 13 | | |
| Pendant, steatite | | | | 1 | | |
| Ring, steatite | | | | 1 | | |
| Pipe plug (steatite ?) | | | | 1 | | |
| Bead | 1 | | | | | |
| MISCELLANEOUS STONE | | | | | | |
| Ochre | x | x | x | x | | |
| Amber | 1 | | | | | |
| Quartz | x | | x | | | |
| Crystal | | | | 1 | | |

TABLE 1.—SUMMARY OF ARTIFACTS COLLECTED—*Concluded.*

| | Ross site | | | Cairn | Lower Kill | Upper Kill |
|---|---|---|---|---|---|---|
| | III | II | I | | | |
| WORK IN BONE | | | | | | |
| Punches | 5 | | 2 | 7 | | |
| Awls, splinter | 1 | 2 | 2 | | | |
| Awls, metapodial | | 2 | 2 | | | |
| Quill flatteners | | 1 | 2 | | 2 | |
| Shaft straighteners | | 1 | 1 | | | |
| Flakers, antler | | | | | | 2 |
| Beads | 14 | 1 | 2 | 4 | | |
| Cut bone | 13 | 10 | 6 | | | |
| Bone tube fragments | 1 | | | 1 | | |
| Danglers | | | | 1 | | |
| Flaked bone | ? | | 1 | | | |
| Elk incisors | 1 | | | 1 | | |
| Bird claw pendants | | | | 3 | | |
| Beaver tooth | | | | 1 | | |
| WORK IN SHELL | | | | | | |
| Beads (cf. *Natica clausa*) | | | | 1 | | |
| Beads (cf. *Olivella boetica*) | | | | 1 | | |
| Beads, *Unio* | 1 | 1 | | | | |
| Pendants, *Unio* | 2 | | | | | |
| *Unio* fragments | x | x | x | x | | |
| WORK IN GLASS | | | | | | |
| Beads | | | | 2 | | |
| MISCELLANEOUS OBJECTS | | | | | | |
| Ammonite septa (buffalo stones) | | 1 | | 1 | | |
| Hair brushes | 4 | | | | | |

## WORK IN CHIPPED STONE

### BIFACES

*Projectile points.* Rather than attempt to name the projectile points from the Oldman River region (similar forms have a number of, as yet, unaccepted names), I propose to use abbreviations which will serve as a key to their characteristics. Acutely side-notched points will be designated "ACN". The number following this symbol will specify the variety of acutely notched point. Points with broad shallow notches will have the symbol "BRN"; corner-notched points, "CN"; unnotched triangular points "TR"; and miscellaneous forms, "MS"; followed by a number to denote the specific form.

*ACN-1,* straight or concave base (Plate I, fig. 1-6). As a group, it seems clear that these 100 points continue to gain in popularity from Layer I to Layer III at the Ross site. The Lower Kill corresponds closely with Layer III in reflecting the popularity of the type (almost 50 per cent of the points from each component). The Cairn shows a radical decrease in ACN-1 points, at the expense of corner-notched points.

Subdivision of ACN-1 points into straight and concave bases has little effect on their graph, although it is true that points with concave bases tend to continue through the Ross site with relatively slight diminution or increase, while straight base points increase constantly from Layers I to III.

Generally the body edges are curved, terminating at the sharply formed notch. The butt edges (between the notch and the base) may be parallel to each other but more often are insloping. Frequently the base is lightly ground. Cross-sections are usually lenticular, owing to bifacial dressing. The lateral edges are even as often as they are jagged and irregular. Crude serration (a form of patterned edge irregularity) is uncommon. Most points are medium in thickness and between 20 and 30 mm in length, the total range being 15 to 36 mm. They are seldom more than 2:1 in length-width ratio.

*ACN-2,* convex base (Plate I, fig. 7). The seven points in this group do not provide a notable curve in the seriation graph. However, as a minority group, it is significant that they occur in the Ross site, the Cairn, and the Lower Kill, providing a link between the sites.

ACN-2 points differ in few features from ACN-1. The lateral edges tend to be straight (and irregular) rather than convex. Cross-sections are about equally plano-convex or lenticular, depending on whether they were unifacially or bifacially chipped. Basal grinding is rare. ACN-2 points are relatively small, usually under 20 mm and range from 16 to 25 mm in length.

*ACN-3* points (Plate I, fig. 8), with rounded butts and straight bases are again few in number (four specimens) but provide a link between the Ross site (Layer III), the Cairn, and the Lower Kill. Most specimens are fragmentary; but in all features they are identical to ACN-2 points.

*BRN-1,* straight base (Plate I, fig. 9–11). These points (30 in number) show a constant increase in popularity at the Ross site. They are even more abundant at the Cairn and Lower Kill, suggesting the relative lateness of these sites.

Usually the lateral edges are curved, rarely straight. Most butt edges are insloping; some have parallel butt edges. In cross-section, as a rule, BRN-1 points are lenticular as a result of bifacial dressing; some are plano-convex, and a few of these have been trimmed along the edges but not dressed on either face. Some are ground along the basal edge. Many points tend to be unusually thick, although the majority are only moderately thick in relation to width and length. Most are well under 2:1 in length-width ratio. In length, they range from 13 to 31 mm; usually they are less than 23 mm. Two specimens from the Upper Kill may have been incorrectly grouped as BRN-1 points. Both, when complete, almost certainly exceeded 35 mm in length and were undoubtedly more than 2:1 in length-width ratio.

*BRN-2,* convex base (Plate I, fig. 12, 13). The eleven points in this group are found in all components except Layers I and II of the Ross site. They increase from Layer III into the Cairn and Lower Kill.

PLATE II

Chipped stone artifacts from the Oldman River region

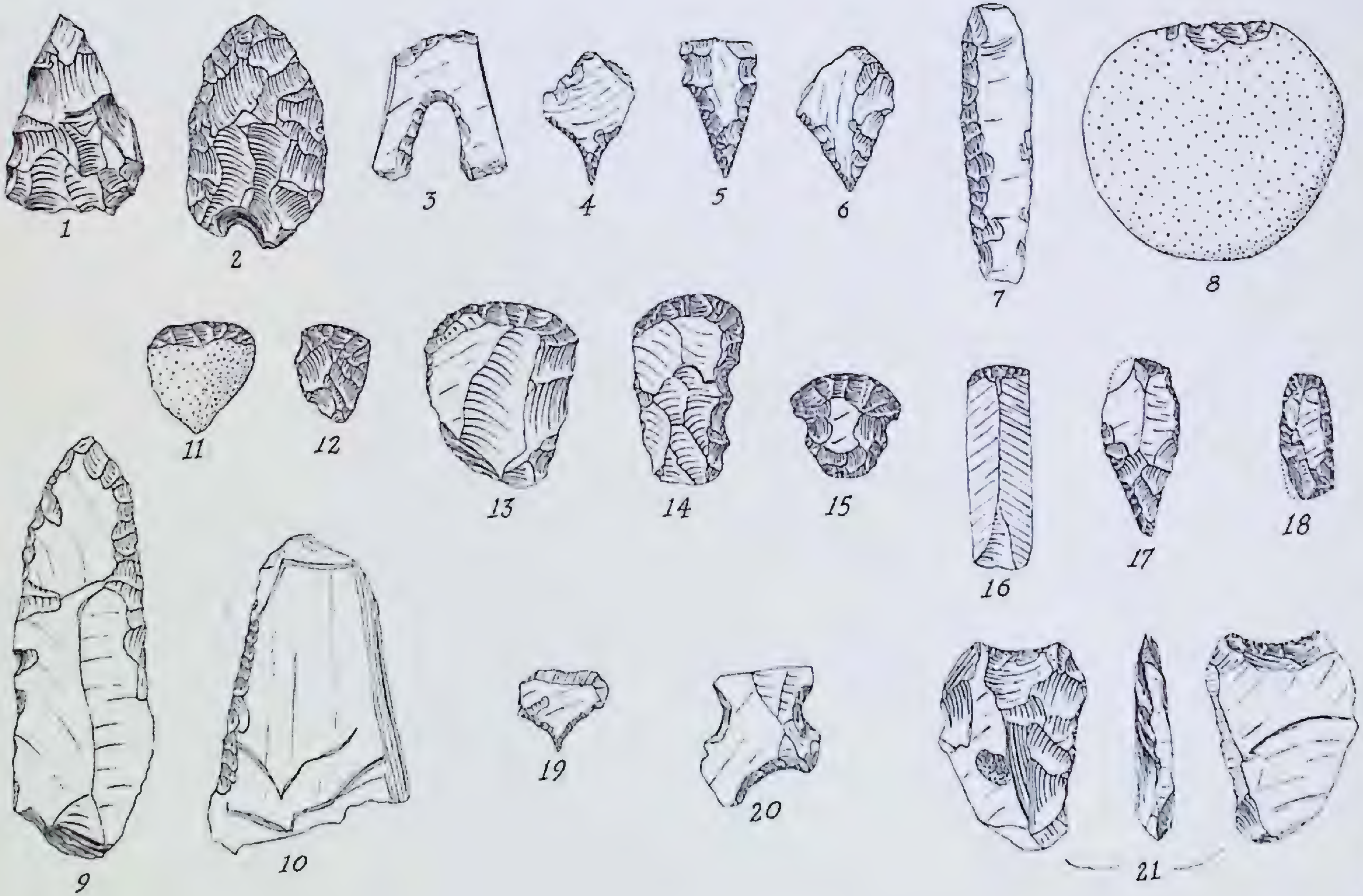
Fig. 1–10. *Bifaces* (Pointed knives, 1,2; U-shaped knife, 3; thinly-pointed awl, 4; stemmed drill, 5; broad-nosed awl, 6; Woodland awl, 7; chisel, 8; blade knife, 9; petrified wood knife, 10).

Fig. 11–20. *Unifaces* (end scrapers, 11–13; end scraper with notched edges, 14; stemmed end scraper, 15; blade end scraper, 16; end scraper-drill, 17; sub-rectangular uniface, 18; graver, 19; spokeshave, 20).

Fig. 21. Combination push-plane-chisel.

All from Layer III of the Ross site, except: Layer II: 16, 19; Layer 1: 7, 12; Grassy Lake Cairn: 18, 21.

PLATE II



Characteristics of BRN-2 points are nearly identical to BRN-1 points, with the following exceptions: they are divided almost equally between bifacially dressed points (with lenticular sections) and unifacially dressed points (with plano-convex cross-sections). All are under 2:1 in length-width ratio. In length, they range continuously between 15 and 22 mm.

*BRN-3,* concave base (Plate I, fig. 14). These points are a definite minority type at the Ross site, represented only in Layers I and III. They expand rapidly in popularity, both at the Cairn and Lower Kill. Although similar to BRN-2 points in most respects, they differ in that the butt edges are more often parallel to each other (rather than in sloping) and grinding of the base is extremely rare. In length, the seven specimens (all measurable) range continuously from 14 to 21 mm.

*CN,* any base shape (Plate I, fig. 15–17). The twelve corner-notched points form a minority class. They occur in all components, bulging in Layer II and at the Cairn. Almost unquestionably, their high percentage in Layer II is a function of the small total of points (17) from that component. Straight-base points are most common. The single concave-base point was found at the Cairn; of the four convex-base points, three are from the Cairn, one from Layer I of the Ross site.

*CN* points ordinarily have straight or nearly straight lateral edges continuing from the tip to the shoulder. The stem flares out, but maximum width is never at the stem. Except for convex base specimens, cross-sections are ordinarily lenticular as a result of bifacial chipping. The base is often ground. They range from moderately thick (in relation to length and width) to thick. Most points are between 20 and 30 mm in length, the total range being 14 to 33 mm. The longest specimen has a concave base. Most of the points are less than 2:1 in length-width ratio, only one exceeding that ratio (Plate I, fig. 15).

*TR-1* points decrease markedly in popularity at the Ross site. This decrease carries on through the Cairn and the Lower Kill. Five bifacially chipped specimens, two of them well made, have been included as TR-1 points, although they vary somewhat from the description below. If they were deleted from the bar graph for Layer III (where they all originated), the decrease in popularity of TR-1 points would be even more striking than it is.

*TR-1* points, generally poorly made, have curved lateral edges and either a straight or concave base (Plate I, fig. 34–37). The edges may or may not slope in, as they approach the base. Usually they are irregular, sometimes so irregular that the points are either asymmetrical in outline or crudely serrated. Most frequently the points are plano-convex in cross-section and unifacially dressed. A few are lenticular in section; still fewer are trimmed along the lateral edges. Most of the points are relatively thin; only a few are moderately thick (usually the bifacially dressed specimens). In length-width ratio, they are generally well under 2:1, and none is over 3:1. Measurable specimens run from 17 to 35 mm in length. Some incomplete specimens were probably longer.

Plate III

General view of the Ross Site

The site is at the centre of the photograph near the lone tree on the south bank of the Oldman River.

*TR-2* points are found only in Layer III of the Ross site, the Cairn, and the Lower Kill, suggesting a link between these components (Plate I, fig. 41). All are small (15–20 mm long), have straight bases, and are bifacially dressed. Most of the four points are lenticular in cross-section. The length-width ratio is 2:1 or less.

*TR-3* points correspond in size to TR-2 specimens but are distinguished by exceptional thinness, a well-made feel, and concave bases (Plate I, fig. 40). In all these qualities, they correspond to the Upper Kill type, and all four prove to be from the Upper Kill, no doubt an unnotched variant of the typical points from that component.

*TR-4* points, with convex bases are, in terms of percentage, most common in Layer I of the Ross site, occurring in lesser percentages in Layer III and at the Cairn (Plate I, fig. 38). Their trend, thus, is similar to that of TR-1, with gaps occurring because of the small size of the total sample (seven specimens).

They conform to the description for TR-1 points with the following exceptions: often neither face is dressed, but rather both faces are merely retouched along the edges; all are well under 2:1 in length-width ratio; and they tend toward thickness rather than thinness. In length they range from 9 to 32 mm. most of them clustering toward the small end of the scale.

*TR-5* points, both from the Cairn, are similar in outline to TR-4 points but have been isolated from them because of exceptional thickness (Plate I, fig. 39). Possibly convex-based triangular points became thicker with the passage of time. These points differ in one other respect from TR-4 specimens: they are bifacially dressed, with the resultant lenticular cross-section. They are 25 and 28 mm long, and less than 2:1 in length-width ratio.

*Upper Kill Type.* Eighty-five points from the Upper Kill (and one from Layer III of the Ross site), while they have the same essential outline as other side-notched points, are unique and can be readily differentiated (Plate I, fig. 26–30). Most diagnostic is an almost indescribable feel, which results from an extraordinarily fine chipping technique. Normally both faces are dressed (Plate I, fig. 26–27). Regular chipping scars extend from the curved edges toward the centre of the blade. About one-third of the points have finely serrated edges formed by the removal of minute chips. The fineness of overall chipping is emphasized by the delicate thinness of the points.

The position of side-notches is also diagnostic. While the notches are carefully made, they are for the most part shallow and narrow. They usually begin less than 3 mm from the base (63%), and are never more than 4 mm. Thus they contrast, visually as well as measurably, with side-notched points from neighbouring sites, where notches are seldom less than 3 mm (5.5%), are generally 5 mm, and may be over 7 mm from the base.

The base is normally concave and is frequently ground, apparently to dull it. This concavity may be bold and deep (creating, in conjunction with a rounded butt, an "eared" effect) or, as is usually the case, fairly shallow. A small percentage (15.3%) have straight bases. Length ranges from 15 to 37 mm, most of the points being 19 to 30 mm long. The length-width ratio is generally under 2:1, although they tend to be long rather than short in proportions; and about one-fifth are over 2:1 in length-width ratio.

Variant forms of Upper Kill points are distinguished only by peculiarities of the base and are not recognized as separate types. One style includes seven specimens which appear to be corner-notched (Plate I, fig. 31). In effect, the butt has been trimmed so that it is not so wide as the blade. The second form, consisting of only one specimen, is characterized by a contracting "stem" (Plate I, fig. 32). The five specimens in style 3 are notched along one edge only (Plate I, fig. 33). Lastly, four unnotched points, small and thin, contrast with triangular points from nearby sites (TR-3, Plate I, fig. 40).

*Miscellaneous points* include a variety of forms. MS-1 is unusual in having a single side-notch, usually acute (Plate I, fig. 18). Of the four specimens, two are from Layer II (causing an inordinate bulge in the seriation profile); and the other two are from Layers I and III of the Ross site. The presence of this form in all layers of the Ross site lends corroboration to the suggestion that it was occupied by the same peoples. Descriptively, these points are identical to ACN-1 points. *MS-2* has a single corner-notch (Plate I, fig. 19). The lone specimen, from Layer III, is plano-convex in cross-section and dressed on one face only. *MS-3* includes two specimens, both from Layer III of the Ross site (Plate I, fig. 25). Lacking notches, they have a relatively straight base running at a considerable angle to the long axis. Both are unifacially dressed and plano-convex in cross-section. They are identical in length (30 mm) and in length-width ratio (nearly 2:1). *MS-4* (Plate I, fig. 20); two specimens, as well as being acutely side-notched, are basally notched as well. They are unifacially dressed, plano-convex in cross-section, and moderate in thickness. They provide evidence of a link between the Ross site (Layer III) and the Cairn, one specimen originating in each component. *MS-5* is unique for a squaring of the shoulders above the notch (Plate I, fig. 21). Bifacially dressed, it is thin and lenticular in cross-section. The single specimen is from Layer III. *MS-6* comprises two identical specimens side-notched along one edge and corner-notched along the other (Plate I, fig. 22). They duplicate each other being unifacially dressed, plano-convex in cross-section, about 25 mm in length, and over 2:1 in length-width profile. Both are from Layer III. One specimen appeared in a photograph of Lower Kill collections. *MS-7* is a single specimen from Layer I (Plate I, fig. 23). It has a side-notch near the tip and, apparently, before being broken, near the base. It is unifacially dressed. *MS-8* includes two acutely notched specimens from the Lower Kill (Plate I, fig. 24). They are distinctive for the butt, which expands well beyond the width of the body. In other features, they are similar to other acutely notched points.

*Pointed Knives* are distinguished from projectile points at least by size and (almost as often) by form. The single specimen from the Upper Kill is identical in outline to the majority of points from that component; it appears, however, to have been well over 50 mm in length, contrasting with the usual 19 to 30 mm. The two specimens from Layer I of the Ross site agree in their triangular form. One is comparatively crude and heavy. Both are within the size ranges indicated by pointed bifaces from Layer III, where the largest sample originated (nine specimens). One subgroup from Layer III consists of specimens with either straight or convex bases (Plate II, fig. 1). All are plano-convex in section and tend to be thick in relation to length and width, especially the smaller ones. Most have crude dressing at least on one face. They range from 28 to 58 mm in length. Only the longest specimen exceeds 2:1 in length-width ratio. The second subgroup contains knives with concave or notched bases (Plate II, fig. 2). Two of the three specimens are plano-convex in section; the other lenticular. All tend to be bifacially dressed and, despite this fact, are fairly thick. They range in length from 34 to 65 mm, and all are under 2:1 in length-width ratio. The third subgroup is represented by only one specimen, an exceptionally large knife. It is bifacially chipped and lenticular in cross-section. The tip is missing; nevertheless it is clear that the lateral edges were curved; they merge imperceptibly into a broadly convex base. Although it may have been 80 mm long and is 50 mm wide, it is only 7 mm thick at the maximum.

A roundly-tipped knife from the Upper Kill is broken at the base. Enough of the base remains, however, to indicate that it was straight and ran at an angle of about 45 degrees to the long axis. The knife is bifacially chipped and plano-convex in cross-section. Probably about 40 mm long, it is 23 mm wide and 5 mm thick.

A small *U-shaped knife* (?) from Layer III has been secondarily retouched on both faces along the inner margins of the "U" as well as along the serifs and the base (Plate II, fig. 3). The outer (lateral) edges are cleanly broken; but the artifact is probably complete as it stands. Its function is much in doubt; one suggestion is that it may have been rotated around bird bones in the process of bead making.

*Thinly pointed awls,* occurring in all layers of the Ross site, are chance flakes trimmed bifacially (often irregularly) along some portion of the edge to form a thin, generally short, needle-like point (Plate II, fig. 4). When present, the tips are extremely sharp; but owing to their delicate structure, most are missing. Apparently, a desire for sharp tips explains the frequent use of obsidian, with its excellent chipping properties. The edges leading to the point do not exhibit retouch indicating rotary use; so these awls were probably used to puncture. Stems retain the original flake scars (not being dressed) and have no regular shape. No specimen exceeds 25 mm between the tip and the butt.

A *stemmed drill,* from Layer III, is side-notched near the cleanly broken base (Plate II, fig. 5). The triangular point is diamond-shaped in cross-section near the tip, becoming lenticular toward the notches. Heavy use retouch of the edges, as well as symmetry of the point, indicates two-way rotary drilling motion. The drill is 24 mm long and 16 mm wide. A thickness of 4 mm gives it a substantial appearance.

Three *drill points,* all lacking heads, appeared in Layer III of the Ross site. Fairly heavy in construction, two are diamond-shaped in cross-section; one is triangular.

Three *broad-nose awls,* from the upper two layers of the Ross site, are shaped more or less like teardrops (Plate II, fig. 6). Chipping on both faces tends to be limited to the edges, but in one case (Layer II) there is extensive dressing of both faces. The points, which are fairly sharp, are formed by two straight edges meeting at an acute angle. Use retouch, sometimes extensive, does not occur consistently on one edge or the other. Shape and retouch suggest use as perforators for enlarging holes made with thinly pointed awls. In length they range from 26 to about 40 mm.

*"Woodland awls."* Four specimens (Plate II, fig. 7) attain the outline of awls illustrated in the "First Archæological Conference on Woodland Pattern" (*American Antiquity,* Vol. VIII, 1943, fig. 39, III, a). They are much elongated ellipses. Three are from Layer I; one is from Layer III of the Ross site. All are bifacially chipped. Only one (Layer I) has the alternate bevelling characteristic of awls. Another (from Layer III) has alternate use retouch; but the other two show no clear evidence of use as awls.

*Chisels.* To the best of my knowledge, the artifacts which I call here "chisels" have not been described previously. Yet they occur throughout the Ross site, and one has its provenience in the Cairn.

That they are a distinct category of artifacts is suggested by specimens which have no evidence of workmanship other than the chisel edge (Plate II, fig. 8). The clearest examples are thin, waterworn pebbles secondarily chipped on both faces to form a sharp, straight or concave edge, generally some 2 to 3 cm long. Use retouch occurs on both faces. While the straight-edge specimens could have served as knives, their resemblance to those with concave edges suggests similar functions as chisels.

From specimens which retain the cortex of the pebble on both faces, chisels merge into specimens retaining the cortex on only one face, and, finally into flakes which have, on both faces, either primary or secondary chipping. These flakes often have other indications of use than the chisel edge (Plate II, fig. 21).

Three *large bifaces* turned up at the Ross site. The single specimen from Layer II is an irregular, water-worn pebble, chipped roughly to a sharp edge at both ends. Use retouch occurs at both ends and is limited to one face, suggesting use as a scraper. The specimen is 8 cm long, 5.5 cm wide, and 3.6 cm thick. Of the two specimens from Layer III, one is pentagonal in outline, plano-convex in cross-section. Almost all edges are bifacially trimmed and regular. One edge has hinge fracture indicating use in battering. It is 65 mm long, 58 mm wide, and 19 mm thick. The other specimen is roughly the shape of an equilateral triangle, rounded at all corners. One edge is not secondarily chipped but is steeply bevelled, with scars of use retouch on the bevel. The other two edges are bifacially worked. Use retouch occurs along these edges on the face opposite to retouch on the bevelled edge. Each edge is about 6 cm long; the specimen is 18 mm thick.

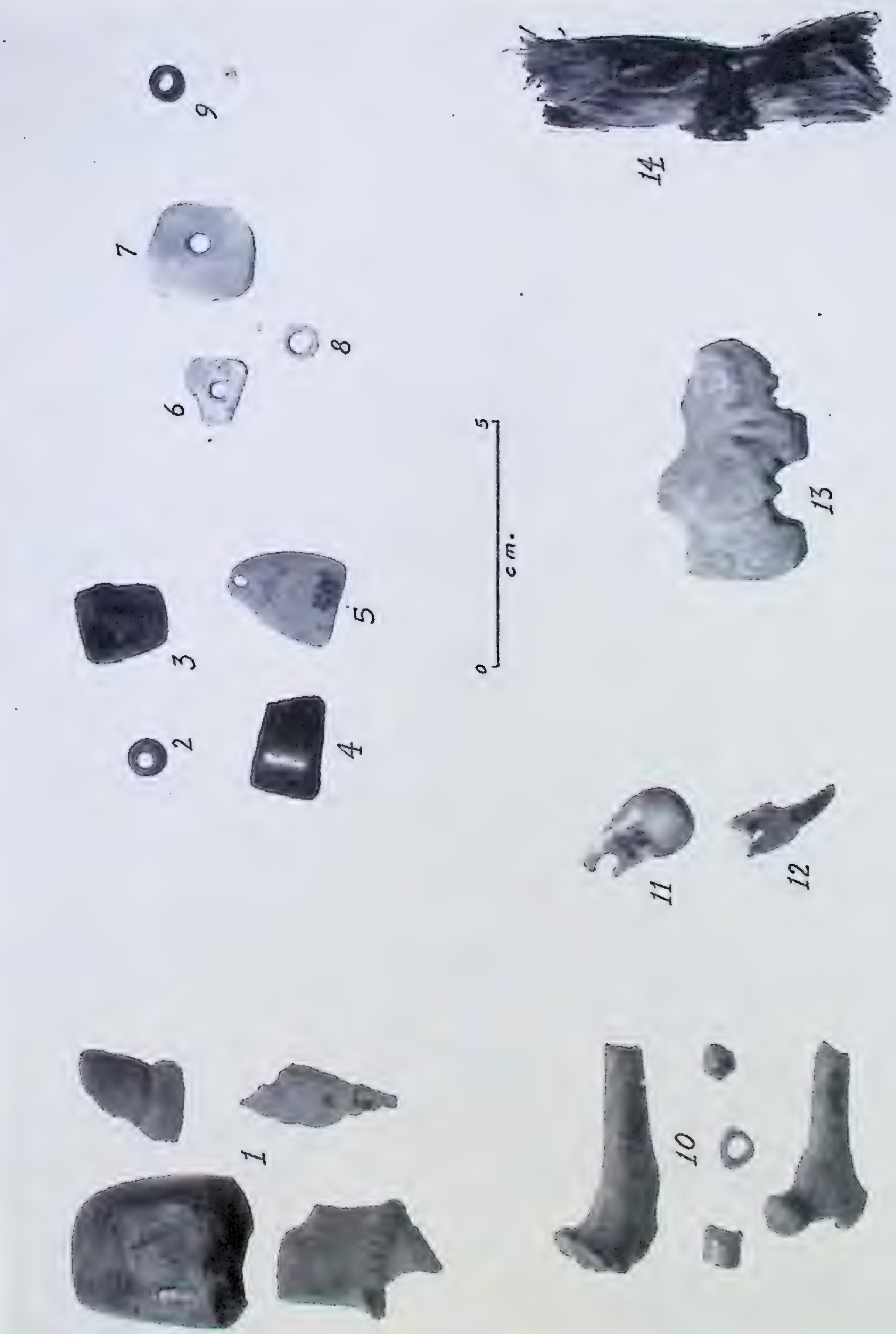
## PLATE IV

Various artifacts from the Oldman River region.

Fig. 1. Pipe fragments (elbow pipe, upper left)
Fig. 2. Bead (steatite)
Fig. 3. Pipe plug
Fig. 4. Ring (steatite)
Fig. 5. Pendant (steatite)
Fig. 6, 7. Pendants (shell)
Fig. 8. Bead (shell)
Fig. 9. Beads (glass)
Fig. 10. Cut bird bones and bird-bone beads
Fig. 11. Pendant (elk tooth)
Fig. 12. Pendant (bird claw)
Fig. 13. Buffalo stone (ammonite septum)
Fig. 14. Hair brush

From Layer II of the Ross site: 8; Layer III: 6,7,11,14; Grassy Lake Cairn: 1-5,9,12,13; From Layers I, II, III of the Ross site and the Grassy Lake Cairn: 10

PLATE IV



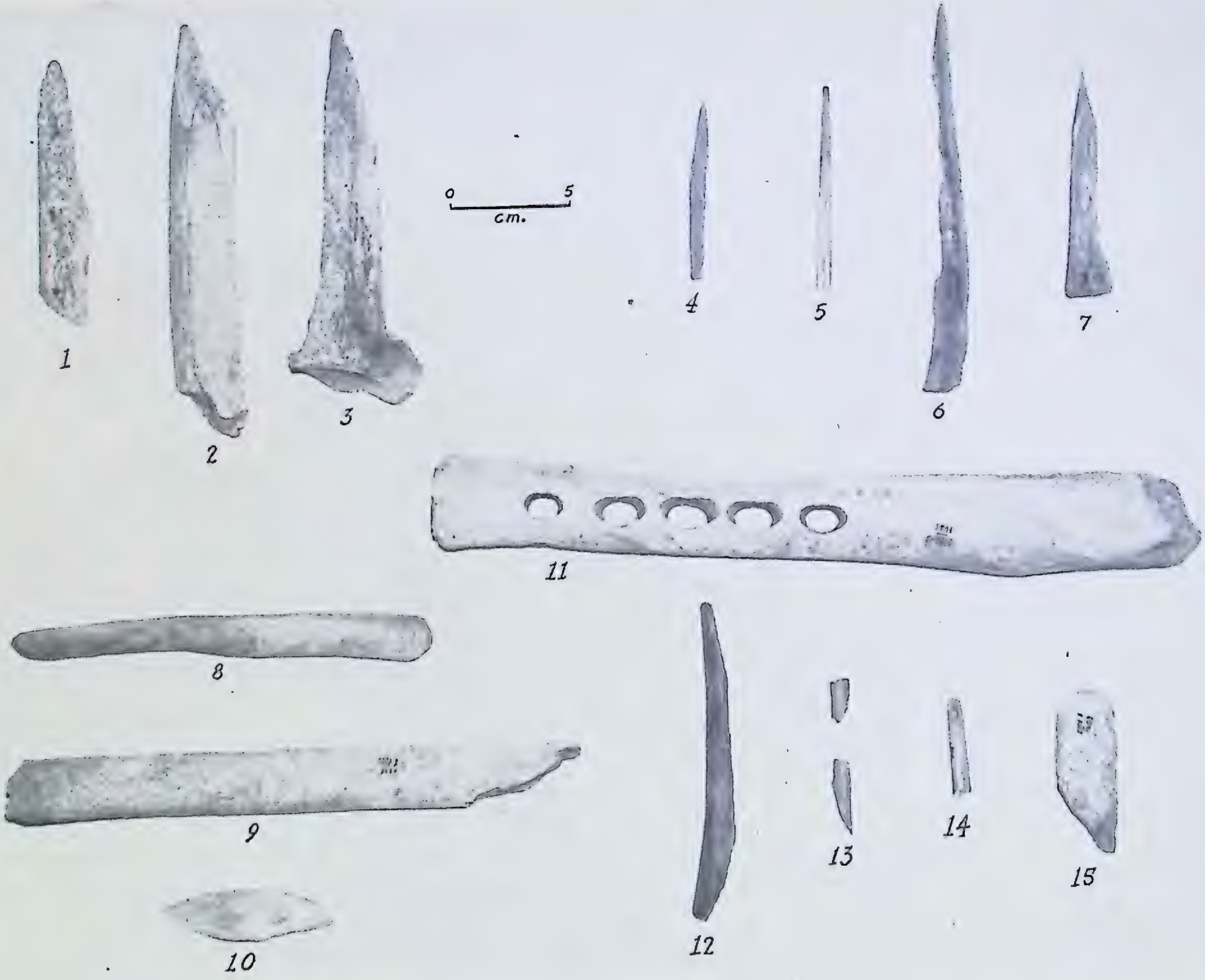
## PLATE V

Work in bone from the Oldman River region

Fig. 1–3. Punches
Fig. 4–7. Awls
Fig. 8–10. Quill flatteners
Fig. 11. Shaft straightener
Fig. 12. Flaker
Fig. 13. Tube fragments
Fig. 14. Dangler
Fig. 15. Flaked bone

From Layer I of the Ross site; 2,3,4,7,9,15; Layer II: 5,10,11; Layer III: 6,13 bottom; Grassy Lake Cairn: 1,13 top, 14; Lower Kill: 8; Upper Kill: 12.

PLATE V



Two specimens from the Cairn are similar to each other in outline but appreciably different in size. Ovoid, they are thick and have irregular edges. Both have crude bifacial dressing. Use retouch suggestive of a scraping function is evident along limited portions of the edges on either one face or the other; never on both faces at the same place. The larger specimen is 54 mm long, 42 mm across, and 14 mm thick; the smaller, 23 by 15 by 7 mm.

*Biface fragments* attributable to projectile points, but lacking diagnostic features, are extremely common. Fragments of other bifaces, where they are sufficiently intact to permit identification, correspond in some cases to complete artifact types. Others are not represented by complete artifacts.

Most fragments can be identified with artifacts similar to the pointed bifaces common in Layers I and III of the Ross site. A few aberrant specimens are interesting. From Layer III there appeared a small fragment—a corner of some artifact—with fine serrations placed about every 3 mm along the edge. Another specimen from the same component is a finely flaked knife with the tip missing. It has a single shoulder with a contracting stem and a pointed base. One edge, from the shoulder to the break, is ground. A third specimen, from the Cairn, is the base of a lanceolate point. It is basally thinned, almost to the point of being notched, and both edges are thoroughly ground. It is unusual in that the break has been rechipped half-way from one edge, and intensively battered there. The other half of the break is unretouched.

*Bifacially chipped flakes.* Commonly a flake of suitable (but indeterminate) shape and material was given a sharp edge by virtue of secondary chipping on both faces. Aside from this, no other features bind the group together. Such flakes are common to all components except the buffalo kills. They are normally under 50 mm in maximum dimension.

One lamellar blade, though it is probably an accidental by-product (and not a *true* blade), is bifacially trimmed along the edges (Plate II, fig. 9). It retains the bulb of percussion and striking platform, at an angle of about 90 degrees from the inner face. This single specimen is from Layer III of the Ross site.

*Petrified wood knives.* Knives made of fortuitous flakes of petrified wood are common to many sites along the Oldman River. This wood, Dr. A. Stalker informs me, was probably *Sequoia*. Petrified wood occurs in slabs over the prairies of southern Alberta and only required some working along the edges to be modified into artifacts. Many of the spalls retain rippling along the grain, which is probably a result of differential weathering. In colour, it ranges from white, through orange and a common dark red, to black.

Typically, only one edge is worked (Plate II, fig. 10). It tends to be straight or convex in about equal frequencies but in a few cases is concave. Almost invariably the chipping scars, which seldom extend more than a few millimetres from the edge, are at right angles to the grain of the wood.

Bifacial chipping is more common than unifacial chipping. Oddly enough, the bifaces do not necessarily have thin (knife-like) edges, nor are the unifaces necessarily bevelled (scrapers). Normally the edges are thin and regular.

By and large, specimens with two worked edges conform to the above description. Ordinarily at least one of the edges is bevelled; thin, knife-like edges are uncommon. In part, this can be explained by the occurrence of specimens with battered edges, a characteristic that is extremely rare among specimens worked only on one edge.

A few specimens appear to be tips of knives, not sharply pointed (Cairn, Layers II and III of the Ross site). Most, however, have no shape beyond that which might be expected from minor secondary chipping. In size, they range from small fragments to spalls about 80 mm in maximum dimension.

### UNIFACES

*End scrapers* occur in all components of the Ross site but are conspicuously absent from other components considered here. The undersurface is almost always left unmodified; a few are chipped there in order to create a relatively flat surface. One scraper has been bifacially chipped for a short distance along one edge. Treatment of the back is highly variable, ranging from virtually unmodified cortex scrapers (Plate II, fig. 11) to those with neat dressing (Plate II, fig. 12). Most frequently, two or three flake scars, in an irregular pattern, cover the back (Plate II, fig. 13). Dressed backs are rare, and cortex scrapers rarer still. There is a tendency, especially among larger scrapers, toward thinness. Only a few are bulky and awkward.

In outline, a few scrapers are triangular. Others are widest at the working end, sloping somewhat toward the rounded butt. While most of them are symmetrical, some have combinations of straight, concave, and convex lateral edges. In a few cases, the working end is eccentric.

In most features the scrapers from each of the three components at the Ross site cannot be differentiated; in size there are observable distinctions. Specimens from Layer III are, on the whole, larger and longer than scrapers from Layers I and III:

TABLE 2.—MEASUREMENTS OF END SCRAPERS FROM THE ROSS SITE

| Length | III | II | I |
|---|---|---|---|
| Over 25 mm | 13 | 3 | 2 |
| 21 to 25 mm | 7 | 2 | 1 |
| Under 21 mm | 4 | 5 | 5 |

Five end scrapers from the Ross site have from one to three notches along one edge (Plate II, fig. 14). The notched edge may be concave, straight, or convex. The under surface is never worked. The back, in two cases, consists of the original cortex; and both examples are comparatively thick. The three specimens with flat backs are roughly dressed. In size they conform to other end scrapers. Three of the four scrapers over 25 mm long are appropriately from Layer III; one is from Layer II. The fifth specimen, from Layer III, is less than 21 mm long.

Another end scraper, from Layer III, has a single notch symmetrically placed on each edge creating a stemmed effect (Plate II, fig. 15). The working edge meets the lateral edge on the round. It is 19 mm long, 21 mm wide, and 7 mm thick.

An end scraper from Layer I has the working end meeting the lateral edge at a sharp angle. The point where they meet is sharp and heavily retouched by use, suggesting it functioned as a graver. It is 22 mm in both length and width, and 9 mm thick. A similar "graver" abuts from the lateral edge of a Layer II scraper, which is 22 mm long, 19 mm wide, and 5 mm thick.

A slim blade from Layer II is chipped to a bevel at one end (Plate II, fig. 16). The other end, once the striking platform, has been modified to remove the bulb of percussion. A medial ridge runs down the centre of the back. This scraper is 36 mm long, 12 mm wide, and 4 mm thick.

The last of the unusual end scrapers, from Layer III, has a long, tapering stem which has been bifacially dressed (Plate II, fig. 17). The shape of the stem suggests the point of a side-notched drill, also from Layer III. This specimen is 31 mm long, 15 mm wide, and 5 mm thick.

A small *ovoid uniface* from Layer II is unique. The upper surface is completely dressed, and one of the longer lateral edges is bevelled. The other edges of this side scraper may be either blunt or sharp. Extensive use retouch is virtually limited to the bevelled edge. The specimen is 27 mm long, 20 mm wide, and 5 mm thick.

A small *subrectangular uniface* from the Cairn is carefully trimmed around the entire edge as well as retouched by use (Plate II, fig. 18). All chipping on the upper face is steeply bevelled. The bulbar scar is visible on the plane face. This scraper is 22 mm long, 10 mm wide, and 5 mm thick.

*Gravers* occur, with certainty, in Layer II of the Ross site, possibly in Layer III and in the Cairn. The single specimen from Layer II is a small flake, chipped along one edge to form a needlelike nose (Plate II, fig. 19). The specimen from Layer III has the form of a small, triangular projectile point. It is strictly unifacially chipped, bevelled along the lateral edges as well as the base. Use retouch occurs along the bevelled edges. The dubious specimen from the Cairn is a flake with two straight, bevelled edges meeting at a poorly defined graving tip. Possibly the tip, as such, was not used. No classic Old World gravers, or burins, were found in any of the components excavated.

*Spokeshaves* are found in all layers of the Ross site and at the Cairn (Plate II, fig. 20). All are fortuitous flakes with one or more worked notches retouched by use. As many as three notches may be found on a specimen, either contiguous to each other or singly at various positions along the edge. The notches are arcs of circles often of different diameters. A number of end scrapers from Layer III and one from Layer II, of the Ross site, have notched edges. A large spall of a waterworn pebble from Layer I is notched along the edge. Retouch, which is limited to the notch itself, is suggestive of use in battering.

*Push-planes.* Artifacts which I propose to call push-planes are not easily classified either as "unifaces" or "bifaces." They are characterized by a cleanly-broken, unworked, bevelled edge (Plate II, fig. 21). This edge meets one face at an acute angle, the other face at an obtuse. On the face lying at an acute angle to the broken edge, scars of retouch indicative of use will be found. It would appear that these artifacts were held at a low angle to an object which was to be scraped, and pushed (broken edge forward) along it.

Push-planes were found in all components except the Upper and Lower Kills. They are often based on flakes of various sizes. Some are made of fragments of artifacts, apparently chosen for the correct angle of the break to one face or the other. As a group, they may be related in function to the chisels described earlier.

*Unifacially chipped fragments* for the most part suggest sections of end scrapers. None is large enough to retain diagnostic features. Some could be sections of flake scrapers, or even of complete artifacts, which may have been bifacially chipped elsewhere.

*Unifacially chipped flakes,* with no obviously intentional form, are common. Such scrapers are found in all components. They may be fairly large, with a maximum dimension of 80 mm but are generally considerably smaller.

One specimen, from Layer I, is a pseudo-blade. It is unifacially retouched by use along one edge. The bulb of percussion remains, as does the striking platform, at an angle of about 60 degrees from the inner face.

## WORK IN HEAVY STONE

*Choppers* are common on many sites in southern Alberta. As a general rule they are waterworn cobbles roughly flaked from one face (Plate VI, fig. 1, 2). The extensive flaked surface is usually at about a 45 degree angle with that face, which it meets at an irregular edge. This edge may be blunt from heavy use, perhaps in breaking animal bones for marrow, and always has some hinge fracture indicative of heavy use. Some specimens may have served as scrapers.

Choppers were found in all layers of the Ross site as well as the Lower Kill. The specimen from the Lower Kill is distinctive in one respect: it is bifacially chipped and should perhaps be designated a "chopping tool" rather than a "chopper." At the Ross site, the size of choppers increases in time. In Layer I they range from 72 to 108 mm in length; in Layer III, from 111 to 162 mm. And the most numerous group, from Layer II, is intermediate in size. Two of these specimens have extensive flaking away from the worked edge. Most choppers are made of a red, fine-grained quartzite.

Two choppers are chipped to working edges at both ends, the remainder of the cobble being unmodified (Plate VI, fig. 3). The one from Layer II is a thin, light slab which would appear to have been ineffectual. The specimen from the Lower Kill falls in the weight range of single-edge choppers. At one end it is bifacially chipped, probably by accident.

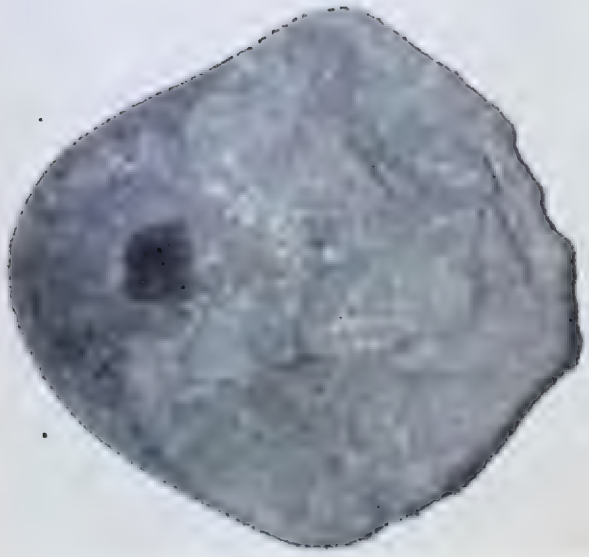
### Plate VI

Heavy stone tools from the Oldman River region

Fig. 1, 2. Choppers (obverse and reverse faces)
Fig. 3. Double-end chopper
Fig. 4. Pounder
Fig. 5. Spall scraper
Fig. 6. Incised "anvil"
Fig. 7. Shaftsmoother

From Layer I of the Ross site: 2,5,7; Layer II; 1,4; Lower Kill: 3; Upper Kill: 6.

PLATE VI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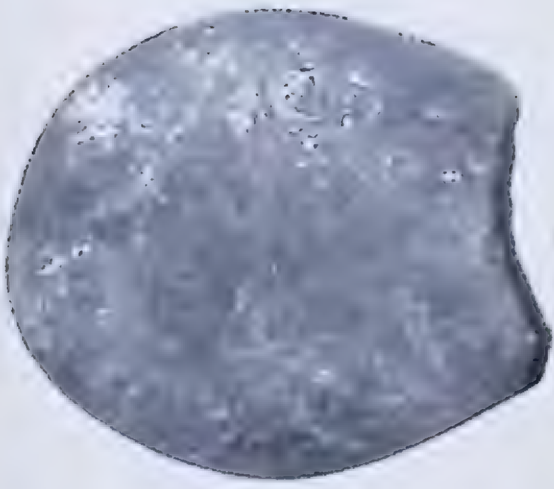
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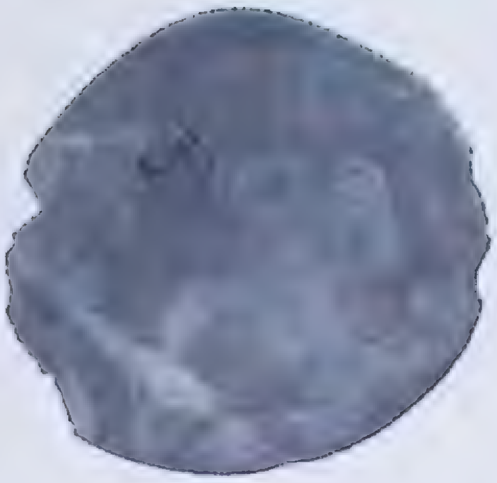
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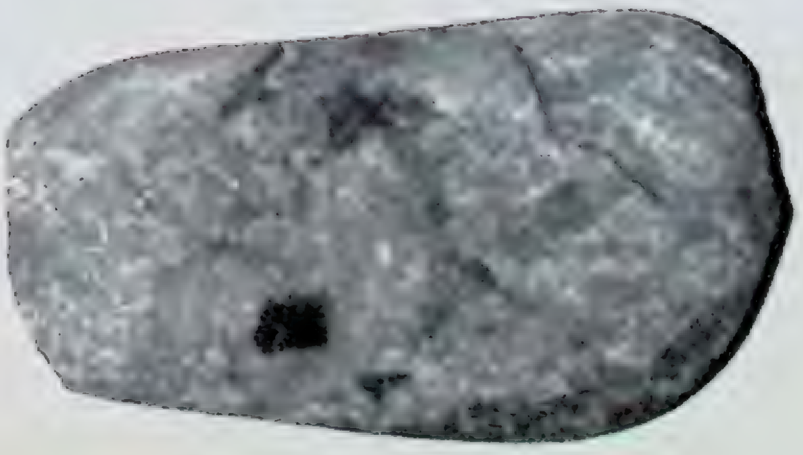
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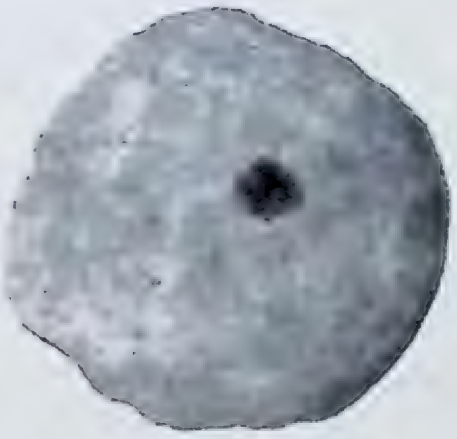
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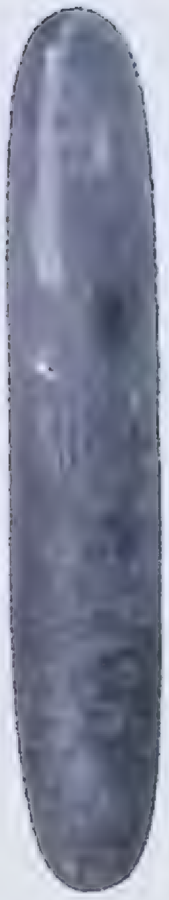
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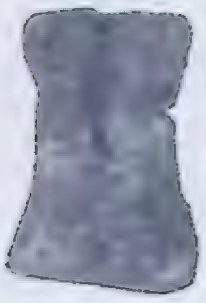
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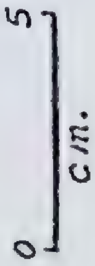

*Pounders* are probably related to choppers (Plate VI, fig. 4). The two examples, both from Layer II of the Ross site, are long, subrectangular slabs of waterworn cobbles. The kind of fracture which occurs on one end indicates use in hacking or battering. The end does not appear to have been intentionally modified; such flaking as there is, probably resulted from direct use. Both are made of quartzite. The complete specimen is 148 mm long, 83 mm wide, and 40 mm thick.

Approximately the same size, a triangular spall of red quartzite has hinge fracture along two edges of the spall face. Presumably these edges were selected for their sharpness, which would maximize the force of a blow directed at a given spot. The other face, being waterworn, has no sharp edges. This specimen is also from Layer II.

Sandstone *spall scrapers* are circular to ovoid spalls of sandstone retaining, on one face, the waterworn cortex (Plate VI, fig. 5). Two originated in Layer I, two in Layer II of the Ross site. Evidence of workmanship on these artifacts is extremely difficult to detect. One part of the edge may be rounded from use. Similar specimens, known sometimes as *tci tho* scrapers, are known to have been set in handles about one and one-half feet long. They are jabbed into a stretched hide in the process of curing it.

An *anvil* from Layer III of the Ross site is a large waterworn cobble relatively flat on one side (the under side) and convex on the other. An irregular portion of the upper surface has been pecked away, suggesting that the cobble was employed as a solid block, upon which pounding could take place.

A slab of stone from the Upper Kill may also have served as an "anvil" (Plate VI, fig. 6). Banana-shaped, it is flat on one surface and convex on the upper surface. Four parallel incisions, some three centimetres long, are placed in the middle of the upper surface. Possibly the stone served as backing when pliable materials were cut with a knife.

## WORK IN GROUND STONE

*Shaftsmoothers* are made of the sandstone native to the immediate region of the Ross site, where they all have their provenience. Normally they are thick blocks some 5 or 6 cm in length. Two specimens (one each from Layers I and III) are irregular in shape, sharing, in addition to the single groove, a flat abrading surface, either at the bottom or along one side. The remaining two (both from Layer I) are unlike each other. One, a regularly shaped block, is squared off at the ends and along the grooved surface (Plate VI, fig. 7). Both sides, however, as well as the bottom, are concave in outline. These surfaces were apparently used as abraders. The last is a small chunk of sandstone with full grooves on two adjoining surfaces. At least four incipient grooves have been started on these and the two other surfaces. There is no evidence that this specimen also served as a flat abrader.

*Pipes* from the Cairn are made principally of steatite, sometimes of catlinite (Plate XV, fig. 1). Almost all the fragments are so small that it is difficult to make reconstructions of the original forms. It is clear, however, that two forms are represented—tubular and elbow. Three steatite fragments combine to form part of a single elbow pipe bowl. The remainder, of steatite and catlinite, appears to be fragments of tubular pipes. In all cases the pipes appear to be of native manufacture. Scratches, indicative of scraping, generally run lengthwise rather than circumferentially, as would be the case if they were shaped on a lathe. Although the material is capable of it, none of the fragments has achieved a high polish. One fragment of a tubular pipe from the Ross site is in the collection of Jacob Hubert.

The elbow pipe has much the same shape as modern commercial pipe bowls. It slopes sharply in at the base where, presumably, it was set into a wooden stem. There is no decoration of any kind on the bowl. The eccentric aperture was formed by drilling from both ends (mainly from the top) and by lengthwise scraping.

Tubular pipes typically have the shape of an elongate barrel, often with a flange at one end. Length cannot be estimated from the fragments at hand. One specimen in a private collection is about 16 cm long; most of the specimens would seem to have been smaller. The diameter of the opening is generally 1½ to 2 cm, tending toward the smaller dimension.

Three tubular pipes are distinctive. The first has a bulbous, flanged rim, delimited from the bowl by a narrow encircling groove. The second has a ring-like shoulder about 2 cm from the squared lip. Small parallel incisions occur about every 3 mm along the crest of the shoulder. The third fragment is of a shoulder with continuous V-shaped incisions running around the edge of the thickening. It also has two conical drilled punctations, the pattern of which cannot be determined.

*Steatite pendant.* Triangular in outline but rounded at all corners, a steatite pendant from the Cairn is light green, mottled with darker splotches (Plate IV, fig. 5). The perforation at the apex was drilled from both sides. Each face is polished, but not sufficiently to remove minute striations from the surface. Warped, it is thin (ca. 1 mm) in relation to length (23 mm) and width (19 mm).

*Ring.* A curved fragment of dark green steatite, from the Cairn, is highly polished and is rounded at both ends, features that distinguish it from certain pipe fragments (Plate IV, fig. 4). Apparently when complete it had an outside diameter of 27 to 28 mm, and an inside diameter of 22 to 23 mm, suitable in size for a finger ring. The fragment ranges from 12 to 15 mm in height; the complete specimen was probably somewhat more variable.

*Pipe plug.* A truncated cone, similar in shape to a cork for a small bottle, is, like many of the pipe fragments, coated with charred organic remains and cannot be identified as to material without damage. It is probably steatite or baked clay (Plate IV, fig. 3). The plug was probably used in a tubular pipe to delimit the bowl from the stem, permitting tobacco to be packed up to the plug and not into the stem. Its symmetrical shape may be the result of the aerodynamic flow and deposition of smoke and tars around it. The single specimen is from the Cairn.

A steatite *bead* from Layer III of the Ross site is a flat disk with an off-centre perforation( Plate IV, fig. 2). The hole is apparently exactly uniform (3 mm) in diameter. On the outer edge, the bead is highly polished; both ends, however, show marks of cutting. It is 7 mm in diameter and 3 mm thick.

## MISCELLANEOUS STONE

The common red and yellow *ochres* (hematite and limonite) were found at nearly every site except the buffalo kills. These minerals may occur in chunks, which range in texture from chalky to sandy and ash-like. Some ochres were found as minute particles mixed with dirt and ashes. White ochre (chalk) was recovered from the Cairn. Possibly the presence of *Unio* shell fragments in other sites can best be accounted for by assuming they were used for white pigment.

A small fragment of *amber*, weathered on both major surfaces, was found in Layer III of the Ross site.

*Quartz* at the Ross site and at the Upper Kill occurred in shattered chunks with no defined form. Some of it may have been crushed to serve as temper in pottery, but this appears doubtful. The single specimen from the Cairn is a long clear crystal which appears to have been secondarily chipped along both lateral edges.

## WORK IN BONE

*Punches* are characterized by a short, blunt point, rounded and polished for a distance of a few millimetres from the tip (Plate V, fig. 1–3). Examples were recovered from the Cairn and from the early and late layers of the Ross site. Almost all are made from sections of bison ribs, usually split. Where they are not split, one edge has been hacked away to permit a point to be formed along the other edge. There has been no deliberate attempt to remove the cancellous material, although some has been worn during use. The two unsplit rib punches are 125 mm long (Cairn) and 168 mm long (Layer I). Most split rib punches are broken; complete specimens range from 108 mm long (Cairn) to 188 mm (Layer III).

One complete specimen is made of a split long bone (bison radius ?). The point has been formed by the removal of bone along both edges. Cancellous tissue is completely missing for a distance of at least 7 cm from the tip. The total length of the punch, from Layer III, is 153 mm. A thick, heavy tip fragment from the Cairn is also probably part of a long bone, being considerably thicker than a section of rib, even of a mature animal.

*Awls* from the various components under consideration can be classified briefly as splinter awls and split metapodial awls, which can further be broken down into sharply pointed and bluntly pointed metapodial awls, when the tip is present. Awls are represented throughout the Ross site and in the Cairn.

Splinter awls from Layer I may be made either of rib or long bone fragments (Plate V, fig. 4). Cancellous material is smoothed off in both cases. Broken edges are rounded, but more obviously rounded on one specimen than on the other. The only complete specimen, with a sharp tip, is 78 mm long and 8 mm wide. Splinter awls were also found in Layer II, but not elsewhere. One is a thin, narrow long awl, scraped and highly polished throughout (Plate V, fig. 5). All edges are well rounded. Both the tip and butt are missing. The second specimen has a broad, spatulate, but sharply tipped point. Striae on the point run lengthwise. For a distance of about 10 mm from the tip, the awl is well polished; elsewhere there is little polish. The broken edges are barely rounded, and much cancellous tissue remains undisturbed. It is 112 mm long. It bears a strong resemblance in form to a single specimen from Layer III, also probably a long bone fragment (Plate V, fig. 6). This awl, however, has diagonal striae on the flat point, and most of the cancellous material has been removed. It is 157 mm long.

Awls made of split (canine?) metapodials were recovered from both Layers I and II of the Ross site (Plate V, fig. 7). They are highly polished, and the broken edges are well rounded from intensive use. No cancellous tissue remains. Specimens from Layer I may be differentiated from those of Layer II by the sharp tip. They are generally about 10 cm long.

Two specimens—one from the Cairn; one from Layer III of the Ross site—are made, apparently, from long bones of a large bird. They may be awls, but in both cases the tips are missing. That they served as artifacts is indicated by rounded broken edges, regular striae, and a certain degree of low polish.

*Quill flatteners,* found in Layers I and II of the Ross site and at the Lower Kill, are aberrant with the exception of a specimen from the Lower Kill, which is made of the rib of either an immature bison or some animal about the size of a deer (Plate V, fig. 8). It has been cut round at one end and polished on both faces near the edge. The second specimen from the Lower Kill is an angular fragment (of long bone?) polished at and near the L-shaped end. In this, it resembles a complete quill flattener from Layer I, a rib shattered at one end leaving an L-shaped working edge (Plate V, fig. 9). A small fragment of dense bone from Layer I may be part of a quill flattener. The single specimen from Layer II is a small slip of split rib polished along a rounded edge (Plate V, fig. 10). Striae on the edge run lengthwise. All the cancellous tissue has been removed, and the whole specimen is lightly polished.

*Shaft straighteners* are made of buffalo hump ribs (neural spines). The specimen from Layer II, 321 mm long, is complete (Plate V, fig. 11). Most of both articulatory surfaces is missing, leaving cancellous tissue exposed. Both edges are worked square and polished, except near the distal end where the bone is worn through to the cancellous tissue. Striations on the edges run lengthwise.

Five holes are placed near the distal end. On each face, which they meet at a sharp border, the holes have their greatest circumference. They decrease in circumference uniformly in the centre of the bone. The holes have attained a high polish.

The specimen from Layer I retains part of its proximal articulatory surface. Some 145 mm long, it is broken above the first hole. It is notched along one edge near the articulation; the other edge has been worn down to the cancellous tissue.

*Two antler flakers* were discovered in a test pit in the Upper Kill, one at a depth of 36 to 42 inches, the other at the bottom (66 to 72 inches). They are almost exact duplicates of each other (Plate V, fig. 12). Both are made of split slips of deer antler from 123 to 144 mm in length. The broken edges are extremely irregular, indicating several steps in bringing the antler to the proper shape. Both have broadly-rounded tips, which are nicked, especially on the outer surface. Other parts of the edge, particularly those near the tip, are also nicked. The smaller specimen has attained a high polish. It was cut through at the butt, probably to ensure breakage at the proper length.

*Beads* of bone, found in all layers of the Ross site and at the Cairn, are made of segments of bird bones and mammal metapodials (Plate IV, fig. 10). Possibly some are decorated; but it seems as likely that the incisions upon them resulted from unsuccessful attempts to carve them from the mother bone. Three varieties may be distinguished, but none has any apparent historical significance. First, some beads were roughly cut and left in that condition, with jagged edges. Secondly, others were trimmed smooth around the edges and given a low to high polish. Thirdly, still others, once extracted from the bone, were cut to a globular form. They are seldom polished; the striae left by the knife are obvious. Most beads are around 8 mm in diameter and 6 mm in thickness.

The bones from which the beads were cut appeared in all layers of the Ross site (Plate IV, fig. 10). Of the fragments, some are cut nearly through in the process of making new beads. Some complete bones have been incised circumferentially; but it is not obvious that these incisions were a step in the bead-making process.

*Miscellaneous bone.* Two thin, curved fragments, one from Layer III, the other from the Cairn, appear to be parts of *bone tubes* some 10 mm in diameter (Plate V, fig. 13). The ends are smooth and rounded; the outer surfaces are polished. One edge of the specimen from the Ross site shows signs of wear, suggesting that these fragments may be of other artifacts than tubes.

*Danglers* are long, thin splints of bone, perforated at one end (Plate V, fig. 14). One was recovered in field work at the Cairn; other specimens in a private collection provide supplementary information. They are apparently made of split ribs cut to a narrow width. While the surfaces are smoothed, indications of cancellous material remain. The eye, at one end, is a poorly made slit running lengthwise. Complete specimens are about 10 cm long.

*Flaked bone* is nowhere better exemplified than in a split rib from Layer I of the Ross site (Plate V, fig. 15). Several flakes have been removed from the outer surface to produce a fairly sharp-edged instrument.

Two *elk incisors,* one each from the Cairn and Layer III of the Ross site, were perforated at the root, which is flat and thin in section (Plate IV, fig. 11). Both appear to have been drilled from two sides; the perforation is worn smooth, almost polished. The specimen from the Ross site has minute incisions on both surfaces running across the perforation from one edge of the tooth to the other. A small nick occurs along one edge where the incisions meet.

Three large *bird claws* have been drilled from both sides near the articulatory surface (Plate IV, fig. 12). Owing to decomposition, the horny covering has disappeared, leaving the porous, bony inner surface exposed. In their present condition, the claws run about 2.5 cm in length. The perforations are about 4 mm in diameter.

The fragmentary outer surface of a *beaver tooth* was found at the Cairn. The isolated position of the Cairn and its elevation above the river make it seem highly probable that this fragment was transported by man. But the fragment shows no sign of workmanship.

## WORK IN SHELL

Of three *shell beads* from the Cairn, two are gastropods: one has been referred to *Natica clausa* by C. R. Stelck of the University of Alberta. An aperture has been cut into the main body convolution. It ranges from Lower California to Alaska on the Pacific Coast. The second has been referred by Stelck to *Olivella boetica,* which is found from San Diego to the Arctic and Bering seas. A small shell bead, a thickness of about 1.5 mm and a diameter twice that, is probably made of *Unio.* Several fragments of this shell were recovered at the Cairn.

Two shell beads from the Ross site (Layers II and III) are virtually indistinguishable from each other (Plate IV, fig. 8). They are 8 to 9 mm in diameter with apertures (drilled from one side) of about 3 mm. Probably made of sections of *Unio* shells, they are 2 to 3 mm thick.

Two poorly made *pendants* from Layer III of the Ross site vary in form (Plate IV, fig. 6, 7). One is roughly triangular. It is small (maximum dimension 14 mm) and has an aperture of 2.5 mm. The hole was drilled from both sides. The other pendant is about 20 mm square. The hole, which is 3 mm in diameter, was drilled from both sides. Both pendants are probably made of *Unio.* Fragments of *Unio* were found at all sites except the buffalo kills.

## WORK IN GLASS

Two *trade beads* were recovered at the Cairn (Plate IV, fig. 9). The larger, dark blue and transparent, has an oval-shaped aperture (2½ to 3 mm across), the edges of which are unevenly moulded. It is slightly larger than 7 mm in diameter and 4 mm in thickness. The smaller bead, also globular in shape, is white and opaque. The bead is slightly flattened at both openings. The aperture is round and regular at the edges. It is 3 mm in diameter and 2 mm thick.

## MISCELLANEOUS OBJECTS

Ammonite septa were recovered both from the Ross site (Layer II) and the Grassy Lake Cairn. These fossils can be found in many outcrops in southern Alberta. The Blackfeet call them buffalo stones (*inisk'im*), regarding them as fetishes. Curtis illustrates a pair of them which have been dressed in leather (1911, VI, facing p. 66).

Four *hair brushes* from Layer III are bundles of individual root fibres[1] bound together by some plant tissue to form cylindrical masses (Plate IV, fig. 14). Two forms are present. In one, the binder is an overlapping strip encircling the centre of the cylinder; both ends of the bundle are squarely cut. In the other, the binding is wrapped around one end, leaving the other end (squarely-cut) to function as a brush. There is no evidence that the binding was sewn; it appears rather to have been glued by some substance, perhaps pitch.

## FEATURES

*Hearths* at the Ross site have essentially two forms. The simplest are thin lenticular ashbeds, roughly circular, which pinch out at the edges. Often, in the centre, they do not exceed an inch or two in depth. Two of these hearths in Layer II contained concentrations of powdered red ochre.

The other hearths are circular basins, which were deliberately excavated by the prehistoric inhabitants. In most cases, they are filled with rocks, as well as with charcoal, bone, and dirt. They tend to be from 1½ to 2 feet in diameter and have a depth of 6 inches or more. They probably served as roasting pits.

*Postmoulds* or, at any rate, holes of small diameter and depth were found in Layer I. An attempt to trace them out proved vain. They fell into no obvious pattern, but as the fill was mixed with flecks of charcoal, it is clear that they were man-made.

In some cases, fire-burned and fire-broken stones, abundant in all layers, seemed to fall into patterns, but an attempt to discover any overall shape to the lines of stone produced no results.

## SUMMARY AND DISCUSSION

Up to this point, I have presented a brief description of four archæological sites in the Oldman River region, a detailed description of their content, and certain comparisons with other sites in the Northern Plains.

Of all the sites considered here, only the Grassy Lake Cairn contains evidence of White contact, as indicated by two glass beads. While these beads may be intrusive, other evidence suggests a late date for the Cairn: first, the projectile point seriation, based on stratigraphy at the Ross site; secondly, a Blackfoot tradition citing the building of the Cairn in the "dog days"; and thirdly, the presence of trade goods at the Grassy Lake Cairn and at the Ethridge site in Montana, where the pottery complex is nearly identical to that of the Cairn. The Cairn, then, would seem to fall in the time between 1700 and 1750, between the beginning of indirect White contact and the acquisition of the horse.

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[1] Identified by R. G. H. Cormack, Professor of Botany, University of Alberta.

While the Cairn and the Ethridge site appear to be protohistoric, other components are prehistoric inasmuch as European trade goods are absent. The top layer of the Ross site, at a guess date, is probably about one or two hundred years earlier than the Cairn, and Layer I may pre-date Layer III by about the same length of time. I would therefore estimate the date of Layer I to be about A.D. 1400 or 1500. The Lower Kill may very well have spanned all occupations at the Ross site. There appears to be no way to relate the Upper Kill to the Ross complex. Unfortunately, radiocarbon datings for these components cannot be secured with precision: all are less than the 1,000 years of age, which K. J. McCallum of the University of Saskatchewan feels to be minimal for accuracy (pers. comm., August 16, 1957).

If some of these components do verge on historic times, as suggested, and if, as I believe, they are in a cultural continuum, then it is clear that whatever group occupied the protohistoric sites can be attributed a prehistoric occupancy in the Oldman and Marias drainages, an occupancy going back perhaps to the time of the discovery of the New World, if not before.

It is curious that the present-day Blackfoot, who controlled the region in historic times, persistently deny an early occupation of the Northern Plains. Written sources support this contention. Curtis cites the tradition of the Kutenai, who claim that just before their acquisition of the horse, the only Indians they met while venturing a short distance onto the Plains were the Shoshone (1911, VII, p. 118). Cyrus Thomas quotes Grinnell to the effect that the Blackfoot lived north of the Red Deer River, and, before that, near Lesser Slave Lake (1903, p. 354). The story told to David Thompson by the elderly Saukamappee places the Piegan north of the North Saskatchewan at about 1730 and implies that the Shoshone (Snake) then held the Plains (Tyrrell, 1916, pp. 327-334).

This traditional attribution of the Northern Plains to the Snakes is repeated again and again. It gains some support from Cocking, who in 1772 observed the fears of his native guides when, upon seeing some horses along the Saskatchewan, they suspected them to belong to the Snakes "with whom they are always at variance" (Burpee, 1909, p. 103). Other tribes, none of them serious probabilities, are also said to have controlled the region—the Kutenai, the Crow, and even the Pawnee! (Moberly, 1929, p. 61.)

The fact that there is so little consistency in these traditions sheds in itself grave doubt on their reliability. But rather than discount them for that reason, I will examine the possibility of Shoshone occupancy, since they are most frequently mentioned.

While Burpee, following Coues, suggests that the "Snakes" could hardly be Shoshone (1909, p. 103n), present-day Blackfoot know the Shoshone as Snakes. Their identity would seem to be established. In ethnographic times, the Snakes occupied the Northern Great Basin and were first sighted by Lewis and Clark in southwestern Montana (Lowie, 1909, p. 171).

Lowie examined the theory that the Northern Shoshone occupied the Plains and were driven westward by attacks of Prairie tribes, noting parenthetically that Kroeber found the hypothesis highly improbable on linguistic grounds. Lowie believes it to be untenable because of the complete

PLATE VII

Pottery from the Oldman River region. Cord-roughened sherds from Layer I of the Ross site

Fig. 1. Cord wrapped stick-decorated cord-marked sherds.

Fig. 2. Pinched rim and shoulder sherds

Fig. 3. Punched rim and shoulder sherds

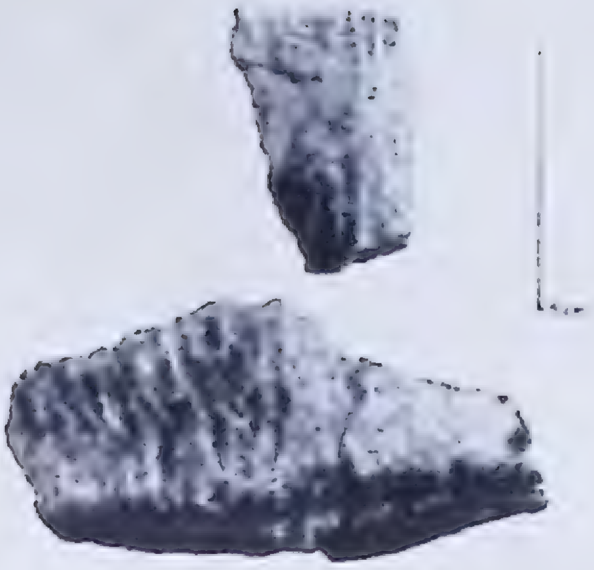
Fig. 4. Fabric-impressed sherds

Fig. 5. Cord-roughened sherds from Layer III of the Ross site

Fig. 6. Check-stamped sherd from the Cairn

All from Layer III of the Ross site, except 1 and 6.

PLATE VII



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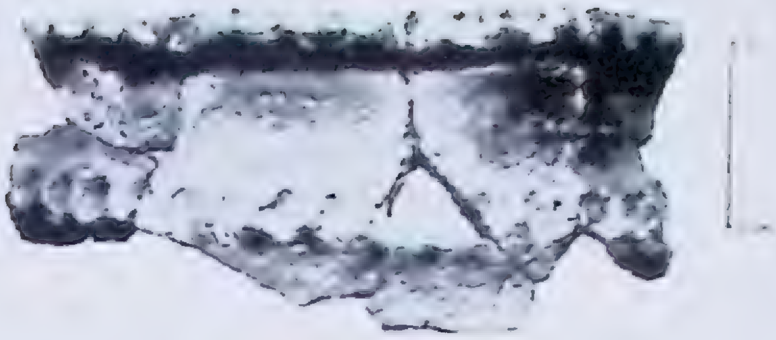

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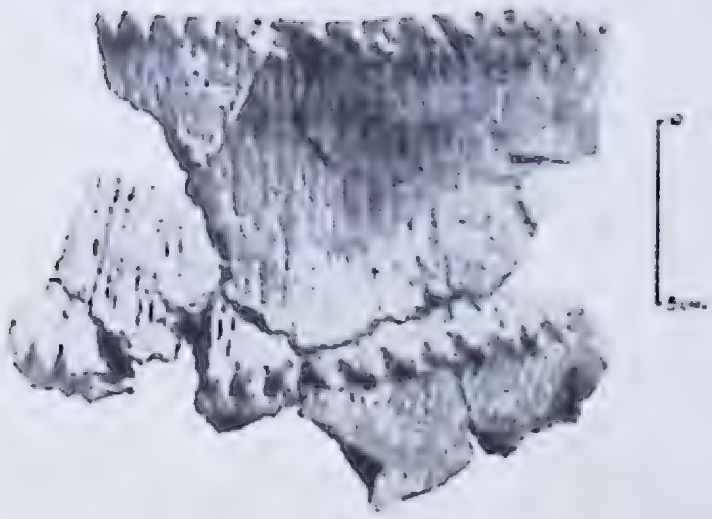

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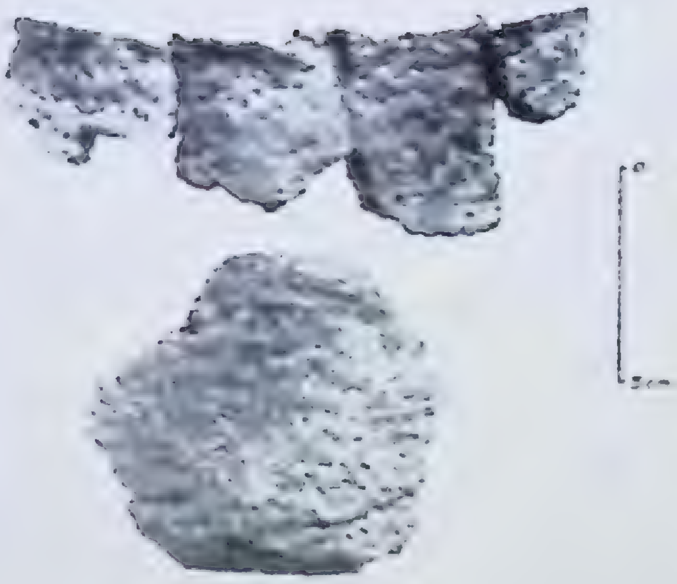

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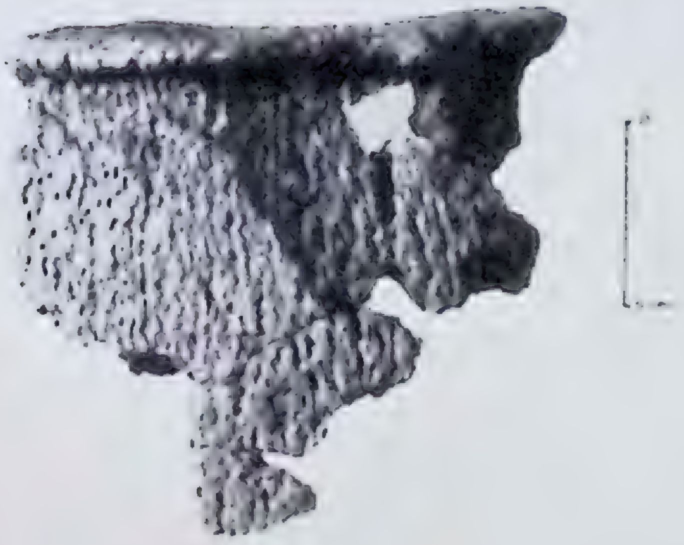

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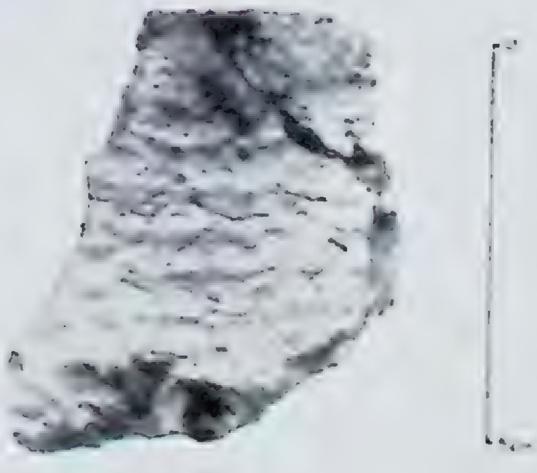

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absence of Snake migration legends; because of their Basin-Plateau traits such as the old type of Shoshone dwelling, the development of fishing, the weaving of sage-brush and rabbit skin blankets; because of the extremely simple social organization, and because of the virtual absence of buffalo tales and the mythological importance of coyote and wolf (1909, p. 171).

Admittedly, archæology of the Northern Shoshone is thin; yet it is clear that flat-bottomed pottery was made by the Northern Shoshone and is distributed over much of the area believed to have been inhabited by Shoshonean peoples (Wedel, 1954, p. 406). As far as I know, not a single sherd of flat-bottomed pottery has yet been recognized from northern Montana or the southern Alberta Plains. Certainly the pottery of the Ross site bears little resemblance to such ware.

An established occupancy of the Northern Plains by the Snakes is therefore improbable on linguistic, ethnological, and archæological grounds. It has been suggested that, about 1700, certain Shoshonean peoples living immediately west of the Rockies, upon acquiring horses, "expanded explosively in all favorable directions," advancing through South Pass in Wyoming and from there radiating out to the south, east, and north (Secoy, 1953, p. 33). Such an explanation would account for their frequent mention in traditions, but it would not point to much hope for finding evidence of intensive Snake occupancy of the Northern Plains.

It still remains to attempt to determine the identity of the prehistoric occupants of the Oldman River region. In historic times, this ground was clearly in possession of the Blackfoot. Myths, such as the legend of the Grassy Lake Cairn, imply that they held the area prehistorically (in the "dog days"). This myth appears to lie in direct contradiction to the tradition of Shoshone occupancy, casting suspicion on the value of tradition.

Just as the Shoshone, according to Lowie, were culturally adapted to the Great Basin environment, so Blackfoot culture, even from the earliest historical times, fits into the Plains environment. The Blackfoot retained few of the elements which might be expected of them if they had recently migrated from the grove belt. Thompson, speaking of the Piegan, appears to have been the first to notice this anomaly when he observed that "these great Plains place them under different circumstances, and give them peculiar traits of character from those that hunt in the forest" (1916, p. 345). Among these elements, he cites the use of horses and dogs for transportation rather than sleds or canoes. Much later, Curtis reiterated these views:

> Notwithstanding the comparatively brief time since their settlement on the prairie, their former forest habitat apparently has left slight impress on their culture, nor do their folk-tales make any considerable reference to a former or different home country. It seems incredible that in so short a period a people, however primitive, could so completely lose sight of a former home (1911, VI, p. 12).

I would prefer to believe that the Blackfoot migration onto the Plains took place so long ago that traditions regarding their former home had been forgotten and that they gradually ceased using elements adapted to a forest habitat, replacing them with elements better adapted to the Plains environment.

Kroeber presents a case for prehistoric Blackfoot occupancy of the Northern Plains when he asserts that they fill "all the geographical and historical conditions which in theory would be needed to account for their set-off linguistical status" (1947, p. 82). Most Algonkian-speaking peoples live in a forest habitat, just as the Blackfoot did at one time. Blackfoot linguistic differentiation resulted from isolation on the Plains.

Kroeber adds that "Moving them into their recent habitat since the introduction of the horse, or even a century or so before, would not allow time for their existing degree of diversity . . . of speech. We may therefore regard (them) as ancient occupants of the northern true (short-grass) plains." (*Ibid.*)

This provides presumptive evidence for a prehistoric Blackfoot occupation of the Ross site and the Grassy Lake Cairn. Unfortunately, these sites contain little in the way of artifacts which might connect them with Blackfoot material culture of historic times. Perhaps only the buffalo stones (ammonite septa) can be regarded as distinctive. As I will point out below, this apparent paucity of diagnostic traits will be corrected with the increase of archæological knowledge of the Northern Plains.

In brief, traditions that suggest a stable occupancy of the Northern Plains by some tribe other than the Blackfoot are laid suspect by other evidence. Some of this evidence, however, is no more conclusive than traditions in establishing the identity of the occupants of the Ross site.

There are two ways, at least, by which this identity might be established. First, the discovery and excavation of intermediate sites, which can be identified with a known group and linked with such protohistoric sites as the Cairn, would bridge the barrier. Secondly, distributions of certain material traits may be found to coincide with early historic tribal distributions, suggesting a cause-and-effect relationship.

I have little hope for the immediate success of the first approach. For with the intensification of White contact, native peoples cast off some industries which had hitherto provided the most distinctive elements of their material culture. Guns and iron projectile points replaced chipped stone points; copper and brass kettles displaced the ceramic arts. The advantage of metal pots was durability, an especially important feature once the horse converted the native Plainsman into a true nomad. Guns, kettles, and horses were introduced almost simultaneously in the Northern Plains, from an archæological point of view. Perhaps within as short a period as fifty years, the ancient arts of chipping stone projectile points and of making pottery vessels were virtually abandoned.

The result is a cultural gap between the material complexes of the protohistoric and historic Indians. I have no doubt that this gap will ultimately be bridged by a meticulous search for, and precise excavation of, components which blend protohistoric and historic culture elements.

The distributional approach may be simpler, but not so conclusive. It is not good logic to assume that because two distributions are the same, a cause-and-effect relationship exists between them. Nevertheless, I think that identical distributions are highly suggestive and can be taken in many cases to establish relationships. A good example is the tentative attribution by Mulloy and Wedel of flat-bottomed pottery and steatite vessels to the Shoshone because of a relatively conformous distribution (Wedel, 1954,

p. 406). Now, so far as I know, Oldman River pottery is limited to Blackfoot country. If it can be demonstrated that pottery from the Oldman River region should coincide with the total Blackfoot tribal distribution (perhaps allowing for some variation among the Siksika, Blood, and Piegan), I will feel that there is a convincing case for prehistoric Blackfoot occupation on the Northern Plains.

Until then, however, I am in no position to do more than suggest that the Blackfoot occupied the Ross site, built the Grassy Lake Cairn, and exploited the Lower Kill. At present, the Upper Kill remains enigmatic, but I am confident that the problems it presents, like other historical problems, can and will be resolved.

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Tyrrell, J. B. (Ed.) (1916). David Thompson's narrative of his explorations in Western America, 1784-1812. Toronto.

Wedel, Waldo R. (1951). Notes on aboriginal pottery from Montana. J. Wash. Acad. Sci., Vol. 41, No. 4, pp. 130-138.

———(1954). Earthenware and steatite vessels from northwestern Wyoming. Am. Antiquity, Vol. XIX, No. 4, pp. 403-409. Salt Lake City.

# BIBLIOGRAPHY OF ANTHROPOLOGICAL LITERATURE FOR 1956 AND 1957

By T. F. McIlwraith, *Professor and Head of the Department of Anthropology, University of Toronto*

Adrien, Père. Conservatisme et Changement chez les Indiens Micmacs (*Anthropologica,* II, Ottawa, 1956, 1-16). Although Micmac culture has changed profoundly, as the Wallises have shown in their recent monumental study, yet when regarded from the viewpoint of contemporary society, a large number of Indian culture traits have been retained. The author describes these, as found on two reserves in Quebec, under the headings of material culture, language, mythology, and socio-religious beliefs.

Anderson, Harry. An Investigation of the Early Bands of the Saone Group of Teton Sioux (*Journal of the Washington Academy of Sciences,* XLVI(3), March, 1956, 87-94). In a scholarly study, the author treats the identification of Sioux bands as recorded in the early nineteenth century, and their subsequent history. Many of their members fled to Canada in 1878 and 1879.

Andrews, J. Eldon. *Toward a Better Understanding of the Canadian Indian.* Toronto: The Presbyterian Church in Canada, 63 St. George St. 1957. Pp. 12. A series of thoughtful essays published originally in *Glad Tidings,* describing significant aspects of Indian culture and the difficulties of cultural integration. Written sympathetically but not sentimentally, it is a worthwhile summary of some of the basic problems facing the missionary work of the churches today.

Annual Report of the Commissioner of the Northwest Territories—1954-55 (*in* Canada, Department of Northern Affairs and National Resources, *Annual Report for the Fiscal Year 1954-1955,* Ottawa, 1956, Appendix G, 100-7).

Annual Report of the Commissioner of the Yukon Territory, 1954-55 (*in* Canada, Department of Northern Affairs and National Resources, *Annual Report for the Fiscal Year 1954-1955,* Ottawa, 1956, Appendix H, 108-15). These two reports contain scattered items of information of government measures on behalf of the Indians and Eskimo in the districts concerned.

Anthropological Research and Publications, 1955-56 (*Anthropology in British Columbia,* V, 1956, British Columbia Provincial Museum, 1957, 7-14). This useful compilation includes a survey of research being undertaken in British Columbia and a bibliography of current publications.

Arron, Walter Jack. Aspects of the Epic in Eskimo Folklore (*Anthropological Papers of the University of Alaska,* V(2), May, 1957, 119-41). A literary study of Eskimo folklore leads to the conclusion that, although epic elements occur in many tales, this aspect of their oral literature is poorly developed.

Baerreis, David A. *The Indian in Modern America.* Wisconsin: State Historical Society of Wisconsin. 1957. Pp. xx, 70. This volume comprises three essays on problems of the modern Indians in the United States, the themes selected being legal status, education, and the position of the Indian as a minority group.

Baird, Irene. Anoutoaloak—The Mace of the Northwest Territories (*Canadian Geographical Journal,* LV(3), Sept., 1957, 120-3). An interesting description, with illustrations, of the ceremonial mace carved by Eskimo of Dorset for the government of the Northwest Territories.

Baker, Paul E. *The Forgotten Kutenai.* Boise, Idaho: Mountain States Press. 1955. Pp. 64. A pleasantly written, semi-popular summary of the Kutenai, based on library research, supplemented with field-work in Idaho and British Columbia. Consideration is given to present conditions as well as to their aboriginal culture.

Baldwin, William W. Social Problems of the Ojibwa Indians in the Collins Area in Northwestern Ontario (*Anthropologica,* V, Ottawa, 1957, 51-123). A thoughtful study of present-day problems of cultural adjustment among the Ojibwa near Lake Nipigon and on the Albany River.

Balikci, Asen. Note sur le Midewiwin (*Anthropologica*, II, Ottawa, 1956, 165-217). This important contribution to the study of the Midewiwin is based on a series of reports, or essays, written by Ojibwa scholars at the Kenora Indian School. The accounts are, in part at least, autobiographical, and all contain observations on religious and magical practices observed by the writers. Balikci adds a thoughtful commentary on the place of the Midewiwin in Ojibwa life.

———Bio-Bibliography of Diamond Jenness (*Anthropologica*, IV, Ottawa, 1957, 37-46). Jenness is one of Canada's most distinguished scholars and an anthropologist of world-wide reputation. This short biography with complete bibliography of his writings is an aid to Canadian scholarship as well as a fitting tribute to Jenness.

Banfield, A. W. F. The Caribou Crisis (*The Beaver*, Outfit 286, spring, 1956, 3-7). This description by a biologist of the serious diminution of the caribou summarizes the importance of this animal to the Eskimo and northern Indians, and includes a few facts on the effects of hunting by natives on the numbers of caribou.

Bank, Ted, II. *Birthplace of the Winds*. New York: Thomas Y. Cromwell, Co. 1956. Pp. xii, 274. This popular description of scientific work in the Bering Sea area contains some original material on the Aleuts.

Barbeau, Marius. Early Americana (*Canadian Geographical Journal*, LIII(1), July, 1956, 2-11). An interesting article, illustrated with well-chosen photographs, in which are described Indian specimens from Canada brought back to Europe in the sixteenth, seventeenth, and eighteenth centuries and preserved in various museums.

———Our Beaver Emblem (*Canadian Geographical Journal*, LV(6), Dec., 1957, 244-50). In the full sense of the word, the beaver is a Canadian emblem. The author illustrates its use in art and symbol by Indian tribes in different parts of Canada, as well as for various purposes both by French and English.

———*Trésor des Anciens Jésuites*. (Musée National du Canada, série Anthropologique XLIV, Bulletin CLIII.) Ottawa: Queen's Printer. 1957. Pp. 242. The Jesuit Order has contributed to the wealth and culture of Canada in a variety of ways, including the production and preservation of works of art, literature, and of such skilled crafts as silverwork and embroidery. The author presents this general thesis, followed by a descriptive inventory of articles preserved in institutions in Canada.

Barnouw, Victor. The Amiable Side of "Patterns of Culture" (*American Anthropologist*, LIX(3), June, 1957, 532-36). Diverse views have been expressed by contemporary anthropologists on interpretations of the work of Boas on the Kwakiutl and on the extent of difference between Boas and Benedict. The author contributes a critical commentary on this theme.

Beals, Ralph L. Father Acosta on the First Peopling of the New World (*American Antiquity*, XXIII(2, Pt.1), Oct., 1957, 182-3). As early as 1590, Father Acosta, writing in Seville, put forward a scholarly hypothesis concerning Indian origins, in which he suggested that groups of hunters probably came by land either from Asia or Europe, crossing on a still undiscovered land-bridge in the northwest or northeast.

Beaton, Kenneth J. Indian Preacher (*The United Church Observer*, XVIII(22), Feb., 1957, 8-10, 26). This popular biographical account of the Rev. Peter Kelly, a Haida Indian, includes much information on the changes in Indian life in British Columbia in the last fifty years.

Bird, J. Brian. Eastern Canada (*in* Geography of the Northlands, American Geographical Society, Special publication XXXII, 1955, 337–52). This geographical description of the Arctic regions of Eastern Canada contains a small amount of information on the Eskimo and northern Indians.

Birket-Smith, Kaj. Danish Activities in Eskimo Research 1949-1954 (*Anais do XXXI Congresso Internacional de Americanistas, São Paulo, 1954*, São Paulo, 1955, II, 1119-28). Danish scientific work among the Eskimo has been continuing and expanding for many years in all fields of anthropology; Greenland is the obvious centre of Danish research, but it is not limited to that area. A useful bibliography is appended.

Black, Samuel. *A Journal of a Voyage from Rocky Mountain Portage in Peace River to the Sources of Finlays Branch and North Westward in Summer 1824.* Edited by E. E. Rich, assisted by A. M. Johnson; Introduction by R. M. Patterson. (Hudson's Bay Record Society, XVIII.) London: The Society. 1955. Pp. c. 260, illus. and maps. This volume comprises the journal of Samuel Black from May to September, 1824, when exploring the headwaters of the Finlay River in north-central British Columbia. It contains much information about the local Indians, with whom the author was obviously on friendly and sympathetic terms.

Bleeker, Sonia. *The Chippewa Indians, Rice Gatherers of the Great Lakes.* New York: William Morrow and Co. 1955. Pp. 157. Written as a book for children, this is a well-balanced, accurate, and informative description of Ojibwa life.

Blessing, Fred K. Some Uses of Bone, Horn, Claws, and Teeth by Minnesota Ojibwa Indians (*The Minnesota Archæologist,* XX(3), July, 1956, 1-11, 14 pl.). Although the modern Ojibwa have given up their ancestral handicrafts almost entirely, some of the older people have a few games, ornaments, and tools of bone. These are described and illustrated.

———Contemporary Costuming of Minnesota Chippewa Indians (*The Minnesota Archæologist,* XX(4), Oct., 1956, 1-8). The type of costume worn by contemporary Indians is a culture element seldom recorded, though it has historical value in terms of the dating of innovation or continuity, and may indicate culture influences from other areas. In this case there is evidence of designs having reached the Minnesota Ojibwa from their Ontario kinsmen.

———An Exhibition of Midé Magic (*The Minnesota Archæologist,* XX(4), Oct., 1956, 9-13). A vivid description of a conjuring feat performed by an old *midé* Ojibwa priest living on the Ontario-Minnesota border.

———Miscellany (*The Minnesota Archæologist,* XX(4), Oct., 1956, 14-17). A series of observations on contemporary Ojibwa beliefs and practices on the Ontario-Minnesota border.

Borden, Charles E. Results of Two Archæological Surveys in the East Kootenay Region of British Columbia (*Research Studies, State College of Washington,* XXIV, 1956, 73-104). Archæological work in the Kootenay region of southern British Columbia resulted in the discovery of fifty-four sites. The artifacts recovered indicate a difference between Kutenai and Shushwap projectile points; no evidence concerning any pre-Kutenai occupancy was found.

Broecker, W. S., and J. L. Kulp. The Radiocarbon Method of Age Determination (*American Antiquity,* XXII(1), July, 1956, 1-11). A scholarly description of the principles of dating by Carbon 14, with carefully formulated conclusions on factors such as contamination, which might prejudice the results.

Bruemmer, Fred. Moosonee and Moose Factory (*Canadian Geographical Journal,* LV(1), July, 1957, 24-9). This popular description of the settlements at the mouth of the Moose River includes photographs of Indian residents and a few items of information about their present-day life.

Bullaty, Sonia, and Angelo Lomeo, *photographers.* Way of Life (*The Beaver,* Outfit 287, Spring, 1957, 24-33). A pictorial record of the Cree who range up and down the Churchill River in northern Saskatchewan near Stanley Mission. The superb photographs are explained in expanded captions by H. S. M. Kemp.

Butler, Eva L., and Wendell S. Hadlock. Some Uses of Birch Bark in Northern New England (*Bulletin of the Massachusetts Archæological Society,* XVIII(4), July, 1957, 72-5). A semi-popular description of the collecting and uses of birch-bark in northern New England and the Maritime Provinces, drawn chiefly from early records.

Byers, Douglas S. The Bering Bridge—Some Speculations (*Ethnos,* XXII(1-2), 1957, 20-6). Although the shortest distance across Bering Strait is between East Cape and Cape Prince of Wales, there is a belt of shallower water between Siberia at Cape Chaplina and the Alaskan mainland, with St. Lawrence Island in its course. The author postulates that a relatively slight change in land and water levels would have enabled early man to reach the New World dry-shod by this route, and that this may have been at an earlier period than commonly believed.

Canada: Department of Citizenship and Immigration, Indian Affairs Branch. *The Canadian Indian,* A Reference Paper. Ottawa: Department of Citizenship and Immigration. 1957, Pp. 15. This useful government publication gives a summary of the status of the Indians of Canada, of the treaties on which administration is based, and of governmental policy and objectives. It is a clear, succinct presentation of salient facts.

Canada [Dept. of External Affairs]. *Land of the Eskimos.* Ottawa: The Queen's Printer. 1957 [Pp. 4.] A brief pamphlet giving in popular form a few facts about the Eskimo and their habitat. It was presumably printed for distribution overseas as an information sheet.

Canada: Dept. of National Health and Welfare. Family Allowances: Indians: Eskimos (*Annual Report for the Fiscal Year ended March 31, 1956,* Ottawa, Queen's Printer, 1956, 126). Indian and Northern Health Services (*idem,* 84-100). Old Age Security: Indians and Eskimos (*idem,* 127). These reports present a clear, though brief, picture of the medical services provided by the government for the Indians, as well as briefer statements on the administration of social security through family allowances and old age pensions.

Canada: Dept. of Northern Affairs and National Resources. Northern Administration and Lands Branch (*Annual Report, Fiscal Year 1955-1956,* Ottawa, Queen's Printer, 1957, 20-32). Northern Administration and Lands Branch (*Annual Report, Fiscal Year 1956-1957, Ottawa,* [Queen's Printer, 1957.] 23-31). These annual reports describe the general organization of government administration in the Arctic, including policies and activities affecting the Eskimo. Developments in this field are included in the subsection report of the Arctic Division.

Canada: Dept. of Northern Affairs and National Resources. Northern Administration and Lands Branch. *Peoples of the Northwest Territories.* Ottawa: Queen's Printer. 1957. Pp. 41. The Northwest Territories is the most sparsely settled area of Canada. This pamphlet describes the principal facts of aboriginal life, with observations on the present-day Eskimo and Athapaskan-speaking Indians, as well as a similar commentary on the past and present of the white settlers.

Carpenter, Edmund. Space Concepts of the Aivilik Eskimos (*Explorations Five,* Toronto, 1955, 131-45). An acute analysis of the concepts of space held by the Aivilik Eskimo of Southampton Island shown in the fields of geography, cosmography, and art.

———*Serpent on the Hill: The Story of a Sacred Grove.* [Toronto: Privately printed. 1956. Pp. 19.] This is a delightfully written general description of the sequence of Indian cultures in Ontario from the earliest times to that of the Hopewell people, who erected a spectacular mound in the form of a snake on the shore of what is now Rice Lake near Peterborough.

———The Timeless Present in the Mythology of the Aivilik Eskimos (*Anthropologica,* III, Ottawa, 1956, 1-4). Temporal sequence is an unknown concept to the Aivilik Eskimo of Southampton Island. This results in what a white man would consider to be confusion in descriptive narratives, where there is little or no separation between past and present.

———Further Evidence on the Beardmore Relics (*American Anthropologist,* LIX(5), Oct., 1957, 875-8). The author cites further statements on the Beardmore find; he believes that the specimens, though undoubtedly authentic Norse pieces of the 10th or 11th century, were "planted" at the site near Lake Nipigon where they were claimed to have been found.

Chalmers, Harvey, in collaboration with Ethel Brant Monture. *Joseph Brant: Mohawk.* Toronto: The Ryerson Press. 1955. Pp. iv, 364. This volume is a contribution to the history of the post-Revolutionary period in Upper Canada. It is written from the Indian point of view, with the central figure, Brant, portrayed with admiration and enthusiasm.

Chapman, J. D., and D. B. Turner, eds. *British Columbia Atlas of Resources.* British Columbia: Natural Resources Conference. 1956. Pp. vii, 92. As indicated by the title, this publication consists of a series of superb maps, illustrating the resources of British Columbia. Each is accompanied by an explanatory statement, often comprising a skilful summary of much material. The section on Indians gives tribal distribution in 1850, and a series of maps and charts showing their participation in economic pursuits, and various demographic factors in relation to total population at the present time.

Chard, Chester S. Chronology and Culture Succession in the Northern Kuriles (*American Antiquity,* XXI(3), Jan. 1956, 287-92). This appraisal of culture history in the Kuriles, based largely on publications in Japanese, is of significance to students of Eskimo and Aleut prehistory. Archæologically, the area shows evidence of a common heritage shared with the Aleutian Islands, but it was not the centre from which the Bering Sea Eskimo culture developed.

———Archæology in Soviet Asia, 1950–1951 (*Kroeber Anthropological Society,* XVI, spring, 1957, 29-43). This survey of Russian publications on archæological investigations in Soviet Asia gives, in summary, the results of work on early sites in eastern Siberia that are of importance in the American field, both for comparative purposes and for data on possible origins.

———The Southwestern Frontier of Eskimo Culture (*American Antiquity,* XXII(3), Jan., 1957, 304-5). In this brief summary of a Russian article, the author describes the results of archæological work on the west side of Anadyr Gulf. The bone artifacts are of Eskimo type, whereas those of stone show affinities with the Magadan area, nearly a thousand miles to the southwest. This area may represent the limits of Eskimo culture in Siberia.

Chown, Bruce. Problems in Blood Group Analysis (*American Anthropologist,* LIX(5), Oct., 1957, 885-8). A critical evaluation of some of the difficulties and limitations in the use of blood-grouping as a means of appraising racial resemblances.

Chown, Bruce, and Marion Lewis. The Blood Group Genes of the Cree Indians and the Eskimos of the Ungava District of Canada (*American Journal of Physical Anthropology,* XIV(2), June, 1956, 215-24). The results are given of the blood-grouping of 165 Cree Indians from James Bay and of 65 Eskimo from the east side of Hudson Bay. Much white intermixture has taken place in the last three hundred years, but the individuals examined comprise a representative cross-section of the modern community.

———The Kell Antigen in American Indians—With a Note about Anti-Kell Sera (*American Journal of Physical Anthropology,* XV(1), March, 1957, 149-58). Studies of blood-grouping among the Ojibwa of Northern Minnesota indicate little deviation from the usual types of adjacent Indian areas, contrary to findings previously reported.

Clarke, C. H. D. Algonquin Park (*Ontario History,* XLVIII(4), autumn, 1956, 193). A brief note recording the discovery in Algonquin Park, Ontario, of a number of sites, ranging in time from that of the Laurentian culture to the period of European contact.

Coatsworth, Emerson S. *The Indians of Quetico.* Toronto: The University of Toronto Press, for the Quetico Foundation. 1957. Pp. 58. This pleasantly written and attractively illustrated volume gives an overall picture of the life of the Ojibwa of the Quetico area on the Ontario-Minnesota border at the time of European contact. It has been adapted from an ethnological study of the area by R. C. Dailey made for the Quetico Foundation.

Codere, Helen. The Amiable Side of Kwakiutl Life: The Potlatch and the Play Potlatch (*American Anthropologist,* LVIII(2), April, 1956, 334-51). Competitive and aggressive behaviour among the Kwakiutl has been emphasized by Benedict and others. They have also a well-developed trait of amiability and fun-making, which is displayed even in ceremonial potlatches; furthermore there are ceremonials of the same type but predominantly for amusement.

———Kwakiutl Society: Rank without Class (*American Anthropologist,* LIX(3), June, 1957, 473-86). Some doubt has been expressed on the accuracy of Boas's statement that the Kwakiutl had rank without class. To test his assertion, the author has analysed the comprehensive text material collected by Boas on cooking. Since the preparation, serving, and distribution of food was of great social significance, these texts contain many references to chiefs and to foods reserved for those of special rank. But there is no indication of a class structure; rank appears to depend on status, thus confirming the conclusion expressed by Boas.

Collins, Henry B. Archæological Investigations on Southampton and Coats Islands, N.W.T. (National Museum of Canada, Bulletin 142, *Annual Report for the Fiscal Year 1954–55*, Ottawa, 1956, 82-113). Archæological work on Southampton Island disclosed a large village of the extinct Sadlermiut Eskimo, which comprised about eighty-five house ruins and extensive middens, one of the largest archæological sites in the Canadian Arctic. About a mile inland a much earlier Dorset settlement was found, covering about twenty acres. The specimens recovered are described and illustrated adequately and scientifically.

———The T 1 Site at Native Point, Southampton Island, N.W.T. *(Anthropological Papers of the University of Alaska,* IV(2), May, 1956, 63-89, 10 pls.). An archæological site on Southampton Island showed relationship both to the Dorset culture and to the early "flint complex" of Alaska, having affinities with the Asiatic Mesolithic. It appears to be proto-Dorset and opens up wide possibilities for further studies of the interaction of early Eskimo cultures.

———Vanished Mystery Men of Hudson Bay *(The National Geographic Magazine,* CX(5), Nov., 1956, 669-87). With the help of excellent photographs, the author describes in an interesting but informative manner, archæological work on Southampton Island, the largest known site in the Canadian Arctic. The results indicate a relationship between the recently extinct Sadlermiut Eskimo and the makers of the much earlier Dorset culture.

———Archæological Work in Arctic Canada *(Annual Report of the Smithsonian Institution for the Year Ended June 30, 1956,* Washington, United States Government Printing Office, 1957, 509-28). An informative account, written authoritatively but in non-technical language, of two summers' archæological work on Southampton Island and its vicinity. At Native Point a large site of the recently extinct Sadlermiut was discovered, and nearby another belonging to the prehistoric Dorset culture. Representative portions of both sites were excavated, together with other house remains on Coats and Walrus islands. The artifacts recovered, together with the house types, throw light on the complex interrelations of Thule and Dorset cultures, and on the ancestry of the Sadlermiut.

Comas, Juan. Principales Contribuciones Indígenas Pre-Colombinas a la Cultura Universal *(Journal of World History,* III(1), 1956, 196-230). In this scholarly and informative article, attention is drawn to elements of aboriginal Indian culture which have been adopted by the white man. These elements are divided into those assimilated into Europe and other extra-American areas; those limited to modern America; and finally those of wider distribution which may not be of exclusively native Indian origin.

———Principales Contribuciones Indígenas Pre-Colombinas a la cultura Universal *(America Indigena,* XVII(1), Enero, 1957, 39-85). A re-publication of the article cited above.

*Conference on the Indian in the Community, Calgary, May 19, 1957.* Toronto: National Commission on the Indian Canadian, 113 St. George St. [1957.] Pp. 38. The conference, of which this volume is a report, was called by a committee of the Canadian Association for Adult Education. It was attended by more than sixty men and women from the four western provinces, comprising members of religious, welfare, and educational groups, having a common interest in helping the Indian to fit into the modern Canadian community. The papers presented, which are published in this report, give examples of what has been done in this direction by voluntary groups in different communities. The formation of the N.C.I.C. and the holding of this conference, is an indication of the increasing intelligent interest of white Canadians in the problems of their Indian fellow-citizens.

Crisp, W. G. Tahltan Bear Dog *(The Beaver,* Outfit 287, summer, 1956, 38-41). At the time of European contact, the Indians had domesticated several distinct species of dog, most of which have since become extinct. A small hunting dog, used by the natives of the upper Stikine, is described and illustrated in this article. A few individuals of this variety may still survive.

*Cumulative Index to Current Literature on Anthropology and Allied Subjects for 1955.* Calcutta 13: Department of Anthropology, Government of India, Indian Museum, 1956. Vol. I. Pp. 171. This is the only current index of anthropological literature that is being published at the present time. The arrangement is logical, and it is to be hoped that the project will be continued and expanded to include material from an even larger number of journals.

Dailey, Robert C., and James V. Wright. The Malcolm Site: A Late Stage of the Middle Point Peninsula Culture in Eastern Ontario *(Transactions of the Royal Canadian Institute,* XXXI(1), Oct., 1956, (3-23). This is a well-written and well-documented description of the excavation of a site near Cornwall, Ontario, in an area which will be flooded by the St. Lawrence Seaway. The site was of Point Peninsula culture, similar in many respects to those of New York State, but with distinctive local characteristics. This is an important contribution to the archæological history of northeastern Canada during the Woodland Period.

Deardorff, Merle H., and George S. Snyderman, eds. A Nineteenth-Century Journal of a Visit to the Indians of New York (*Proceedings of the American Philosophical Society,* C(6), Dec., 1956, 582-612). The Journal, which is printed here for the first time, was written in 1806 by John Philips, describing a visit by himself and two other Quakers to the Seneca Indians of Western New York. The editors give a scholarly background of conditions among the Iroquois during this troubled period following the American Revolution and after the withdrawal of Brant and the Royalist Mohawk to Canada. This article is a significant contribution to Iroquois studies.

De Laguna, Frederica. *Chugach Prehistory: The Archæology of Prince William Sound, Alaska.* (University of Washington Publications in Anthropology, XIII). Seattle: University of Washington Press. 1956. Pp. xix, 289. This is an important and meticulous study, embracing the results of four seasons work on Prince William Sound, Alaska. The material represented belongs to the late Eskimo culture and was probably made by the ancestors of the Chugach people in the five hundred years preceding historic contact. Both text and illustrations follow the best archæological practice.

Dempsey, Hugh A. Social dances of the Blood Indians of Alberta, Canada (*Journal of American Folklore,* LXIX (271), Jan.–March, 1956, 47-52). In spite of the pressure of modern society, the Blood Indians have retained many of their native dances, including the Owl dance, which apparently spread to them from the United States in 1914 or 1915.

———Stone "Medicine Wheels"—Memorials to Blackfoot War Chiefs *(Journal of the Washington Academy of Sciences,* XLVI(6), June, 1956, 177-82). Circles of standing stones have been used in relatively recent years by the Blackfoot of southern Alberta as memorials to great chiefs. One erected in 1940 comprised 77 stones and was 27 feet in diameter.

Desrosiers, Léo-Paul. Préliminaires du Massacre de Lachine *(Les Cahiers des Dix,* XIX, 1954, 47-66). Rivalry between France and England between the years 1665 and 1690 led each to enlist the Iroquois as allies and precipitated a chain of events which had far reaching effects upon Indian history.

———Iroiquoisie, Terre Française (*Les Cahiers des Dix,* XX, 1955, 33–59). A historical study of the struggle between France and England for the Iroquois as allies during the years 1665 and 1666.

Dewdney, Selwyn. *Report on Pictograph Expedition to Quetico Provincial Park July-August, 1957.* Toronto: The Quetico Foundation, 224½ Simcoe Street, Mimeographed. 1957. Pp. 16. During the summer of 1957 studies were made of pictographs at eleven sites in Quetico Park, Ontario. Satisfactory descriptions are given of the locations, techniques, and art styles, with thoughtful comments on probable meaning and antiquity. This is a useful report on rock paintings and carvings in a little known area.

———Pictographs from Quetico (*Bulletin of the Division of Art and Archæology, Royal Ontario Museum,* XXVI, Dec., 1957, 23-4). A note, with illustrations, describing pictographs from Quetico Park near the Ontario-Minnesota border. Diagrams, photographs, and paint samples were collected and deposited in the Royal Ontario Museum, Toronto.

DOCKSTADER, FREDERICK J. *The American Indian in Graduate Studies: A Bibliography of Theses and Dissertations.* (Museum of the American Indian, Heye Foundation, Contributions, XV.) New York: Museum of the American Indian, Heye Foundation. 1957. Pp. xvii, 399. This comprehensive bibliography lists 3,684 graduate theses with data on the Indians, written at 203 universities in the United States, Canada, and Mexico, between 1890 and 1955. Though the majority are anthropological, dissertations from allied fields are included if they contain significant Indian material. In addition to the name of the author and institution, each entry gives the title of the thesis, its date, length, and the degree for which it was submitted, as well as its scope (if not indicated by title) and, in many cases, the place of publication.

DODGE, ERNEST S. Ethnology of Northern New England and the Maritime Provinces (*Bulletin of the Massachusetts Archæological Society,* XVIII(4), July, 1957, 68-71). A general description of the Algonkian-speaking tribes of Northern New England and the Maritime Provinces, giving a brief statement of the culture of each, and a few salient facts on location and history.

DRIVER, HAROLD E. An Integration of Functional, Evolutionary, and Historical Theory by Means of Correlations (*International Journal of American Linguistics,* supplement to XXII(1), Jan., 1956, 1-38). (Indiana University Publications, Anthropology and Linguistics, Memoir XII.) An application of statistical methods to theories of culture change, as illustrated by Indian tribes of North America.

DRIVER, HAROLD E., and WILLIAM C. MASSEY. Comparative Studies of North American Indians (*Transactions of the American Philosophical Society,* XLVII(2), July, 1957, 163-456). This outstanding volume provides a synthesis of ethnological data for North America with details of scope and distribution on a scale far beyond that of WISSLER or KROEBER. The greater part of the volume is devoted to a study of culture traits and their distribution. Under *sustenance,* methods of hunting, fishing, gathering wild plants, and farming are treated; *material culture* includes transportation, housing, clothing, and ornamentation, crafts, and weapons; under the heading of *economics* appear division of labour, exchange, and property concepts; *social organization* has the subheadings of marriage, the family, and larger groups. Maps (163 in all) give the distribution of an equal number of culture elements, an outstanding piece of scholarship in itself, and one that will prove invaluable to all teachers. The last chapter is a theoretical study of cultural integration and relationship, based upon statistical analysis. This is one of the most important ethnological studies of recent years.

DRUCKER, PHILIP. *Indians of the Northwest Coast.* (Anthropological Handbook, X.) New York: McGraw-Hill, published for the American Museum of Natural History. 1955. Pp. XII, 208. This volume departs in certain respects from the pattern of American Museum *Handbooks,* which were planned originally as factual introductions to the life of the people of an area. Drucker gives abundant material, which is well illustrated and attractively presented, but in addition he includes hypotheses on culture history and on tribal interactions, which increase the importance of this book to the professional anthropologist.

———Sources of Northwest Coast Culture (*New Interpretations of Aboriginal American Culture History,* Anthropological Society of Washington, 75th Anniversary Volume, 1955, 59-81). Based on a comprehensive and masterly analysis of Northwest Coast culture, Drucker postulates its main focus to have been in the Wakashan area of Vancouver Island and the adjacent mainland, rather than among the northern tribes. On the basis of ethnographic resemblances, he believes the origin of the distinctive traits of the Northwest Coast peoples to have been in a prehistoric subarctic fishing and sea-hunting culture in the Bering Sea area, from which Eskimo and Aleut specializations stemmed. This new hypothesis will require testing by archæological work.

Duff, Wilson. Unique Stone Artifacts from the Gulf Islands (Provincial Museum of Natural History and Anthropology, *Report for the Year 1955*, Victoria, 1956, 45-55). On the Gulf Islands, southern British Columbia, there have been found some fifty soapstone artifacts. All are carefully made and highly polished; a number of forms can be distinguished, but none of these represent types found elsewhere, and their use is problematical.

———An Unusual Burial at the Whalen Site (*Research Studies of the State College of Washington*, XXIV(1), 1956, 67-72). A skeleton excavated from a shell-heap at Boundary Bay, on the border between British Columbia and Washington, in an area threatened by housing development, can be assigned to the period of Whalen II. It was remarkable for associated grave goods, including a beaver-tooth knife with an antler handle carved in a unique style.

———Prehistoric Stone Sculpture of the Fraser River and Gulf of Georgia (*Anthropology in British Columbia, V. 1956*, British Columbia Provincial Museum, 1957, 15-151). Although the occurrence, in the Fraser Valley and adjacent areas of various types of stone sculpture of considerable archæological, cultural, and artistic importance has been known for many years, this is the first comprehensive analysis of the subject. It could well serve as a model for comparable studies. Duff divides his material into seven types and gives a description of the specimens, with analysis of art styles, distribution, indications of use and age as deduced from archæological or ethnological evidence, and general discussion of possible relationship with cognate forms. Then follows a brilliant analysis of the probable development of the complex, culminating in the seated figure holding a bowl, which appears to have been made and used by the Coast Salish within historic times. Duff postulates that this "stone sculpture complex" influenced the development of Northwest Coast wood carving, a thesis which he presents in an intricate but ingenious set of arguments. This a most important article, in which the only flaw is the limitation in the number of plates because of printing costs.

Dustin, Fred. An Archæological Reconnaissance of Isle Royal (*Michigan History*, XLI(1), March, 1957, 1-34). This report, which has remained unpublished for almost thirty years, describes an archæological survey of Isle Royale in the summers of 1929 and 1930. Greater attention is paid to the location of ancient copper workings, and to possible trails between them, than to the actual techniques of mining. In view of the assumption that most of the copper found in aboriginal sites in Ontario came from Isle Royale, this first comprehensive archæological report on the island warrants inclusion in a Canadian bibliography, even though the author concludes that the contacts were between Isle Royale and the Michigan mainland, rather than northward to Ontario.

Eiseley, C. Loren. The Paleo Indians: Their Survival and Diffusion (*New Interpretations of Aboriginal American Culture History*, Anthropological Society of Washington, 75th Anniversary Volume, 1955, 1-11). A stimulating essay, written in almost a philosophical vein, on the development of man and his spread to the New World, probably during a recession of the last glaciation. His diffusion through the Americas was relatively rapid and depended on predation upon the enormous herds of large mammals; perhaps he was a major factor in their decline, and this, in turn, encouraged the beginnings of agriculture.

Ekholm, F. Gordon. The New Orientation toward Problems of Asiatic-American Relationships (*New Interpretations of Aboriginal American Culture History*, Anthropological Society of Washington, 75th Anniversary Volume, 1955, 95-109). In the last ten years there has been an increasing interest among American anthropologists in the possibility of prehistoric cultural influences having reached the Americas from Asia. Resemblances in cultivated plants, in art styles, and in a variety of types of manufacture, suggest that the New World was less isolated than was believed to be the case a generation ago. This possibility calls for a re-appraisal of the implications of culture similarities, and for a consideration of the sea-faring activities of early peoples.

Emerson, J. Norman. *Castellation Development among the Iroquois.* (Ontario Archæological Society, Research Guide No. I.) Toronto: Ontario Archæological Society. Dec. 1955. Pp. i, 14. In this scholarly paper the author shows that an analysis of the types of castellation upon Iroquois pottery is valuable in tracing the development of culture sequence in southern Ontario. Data are given on the relative frequency of different forms from various sites.

———The Kant Site: A Point Peninsula Manifestation in Renfrew County, Ontario (*Transactions of the Royal Canadian Institute,* XXXI(1), Oct., 1956, 24-66). Archæological excavations on the farm of Mr. Charles Kant, in the Ottawa valley near Arnprior, Ontario, disclosed a site of Point Peninsula culture, probably occupied by a small hunting group. The artifacts recovered sufficed to identify the period as belonging to the "early-middle" phase of Point Peninsula, and gives specific evidence of the occurrence of this archæological horizon in this area of Ontario. Robert E. Popham gives a detailed description of the osteology of the skeletal material. This article is in the best tradition of scientific archæological work.

———Red Ochre and Ritual (*Ontario History,* XLVIII(4), autumn, 1956, 190-2). Excavation of an ancient Point Peninsula site near Cornwall, Ontario, in the area to be flooded by the seaway, uncovered a considerable number of artifacts, as well as eighteen cremation burials with grave goods. This preliminary statement indicates the importance of the area.

———*Understanding Iroquois Pottery in Ontario.* Toronto: Ontario Archæological Society. March, 1956. Pp. vi, 64. Though written for the amateur archæologist as a guide to the typology of Ontario Iroquois pottery, this paper fulfils a much wider function. The forms and decorations are described in detail and are well illustrated, and the methodology of archæological analysis is explained by examples from sites excavated in southern Ontario. The results show the cultural sequences that have been established by this technique. This is an important and well-documented scientific paper.

———The Village and the Cemetery (*Ontario History,* XLVIII(4), autumn, 1956, 184-5). This brief preliminary note describes the results of the excavation of a village site in Scarborough, in suburban Toronto. The material recovered shows it to have been a proto-Huron or proto-Neutral settlement, probably the one to which belonged the ossuary described by Kenyon, q.v., of the thirteenth century.

Encyclopædia Canadiana. Ottawa: The Canadiana Company Limited. Vol I. 1957. Pp. 412. In this annual bibliography of Canadian anthropology, attention should be drawn to the new *Encyclopædia Canadiana* of which the first volume, from *abalone* to *blowers,* appeared in the autumn of 1957. The social sciences are well covered. This volume contains articles on Anthropology and Archæology, as well as on all Canadian Indian tribes within the alphabetical range covered.

The Eskimo (in *Societies Around the World,* ed. Howard Becker, The Dryden Press New York, 1956, 29-141). One of the societies summarized in this volume, which is planned as a university "reading-text," is the Eskimo. The presentation is clear and logical, thereby fulfilling its purpose as a broad picture of Eskimo life, suitable for undergraduate use. Relevant sections are taken from the works of Charles E. Snow, C. F. Voegelin, Thomas P. Field, Edward M. Weyer, Jr., W. Elmer Ekblaw, Richard B. Woodbury, Frank G. Speck, Edward W. Nelson, Jeanette Mirsky, Margaret Lantis, Knud Rasmussen, Kaj Birket-Smith, E. Adamson Hoebel, Elizabeth MacCarthy, and George A. Dale.

Essene, Frank J., Jr. A Comparative Study of Eskimo Mythology (*Kroeber Anthropological Society Papers,* XIV, spring, 1956, 96-7). An abstract of a Ph. D. thesis, of which the main conclusion is that Eskimo Mythology is more closely related to that of the Old World than to that of neighbouring Indian tribes.

Ewers, John C. George Catlin, Painter of Indians and the West (Smithsonian Institution, *Annual Report for 1955,* Washington, 1956, 483-528, 20 pls.). In a thoughtful essay on Catlin's life and work, the author records the areas in which he worked and comments on the extent to which his paintings of costume, mode of life, and appearance may be regarded as accurate.

———The Assiniboine Horse Medicine Cult (*Anthropological Quarterly,* IV(3), July, 1956, 57-68). An old man, probably the last person with knowledge of the Horse Medicine Cult among the Assiniboine, provided sufficient information for the author to compare the ritual in the Assiniboine tribe with that of the Blackfoot. There are many resemblances, and the evidence suggests that the society spread to the Assiniboine from the Blackfoot.

———The Gun of Sitting Bull (*The Beaver,* Outfit 287, winter, 1956, 20-3). When Sitting Bull surrendered to Col. Brotherton in 1881, he handed over his gun. The author believes it to have been a Winchester repeating rifle, presented to the Smithsonian Institution in 1946 in a collection which had originally belonged to Col. Brotherton.

———Hair Pipes in Plains Indian Adornment (*Anthropological Papers,* L. Smithsonian Institution, Bureau of American Ethnology, Bulletin CLXIV, Washington, 1957, 29-85). "Hair Pipe" is the accepted designation for the long cylindrical bead commonly used by the Plains Indians, either singly or in multiple bands to form a virtual brestplate. The author traces their history by a skilful utilization of documentary sources, archæological material, dated photographs and paintings, and museum specimens. He finds the prototype to have been prehistoric stone and shell beads which had a wide distribution in eastern America; the manufacture of machine-made shell beads by a commercial firm in New Jersey increased the supply and stimulated their use in the early nineteenth century. On the Plains, shell was replaced by bone about 1880.

FENTON, WILLIAM N. Factionalism in American Indian Society (*Actes du IVe Congrès International des Sciences Anthropologiques et Ethnologiques,* II, Vienne, 1952, 330-40). The process of political adjustment among four Indian tribes, including the Iroquois of northern New York and southern Ontario, illustrates the importance of the survival of aboriginal cultural patterns. Among these is factionalism, a trait which, among the Iroquois, has tended to increase, although the divergent groups have altered.

———Some Questions of Classification, Typology, and Style Raised by Iroquois Masks (*Transactions of the New York Academy of Sciences,* Ser. II, XVIII(4), Feb., 1956, 347-57). Recognizing that any analysis of Iroquois masks that is based purely on typology must lack the advantage of an understanding of their use among the Iroquois, the author gives a succinct description of the problems of classification, based upon both style and function.

———Toward the Gradual Civilization of the Indian Natives: The Missionary and Linguistic Work of Asher Wright (1803-1875) among the Senecas of Western New York (*Proceedings of the American Philosophical Society,* C(6), Dec., 1956, 567-81). Based on study of the educational and missionary work among the Seneca of the Society of Friends and the American Board of Commissioners for Foreign Missions, the author gives a broad and scholarly commentary on the history of culture change among the Iroquois. He describes the basic features of their native culture and shows how these have affected, and have been affected by, the constant growth of white influence. This is a very scholarly article, with important implications in the field of culture change.

———Long-term Trends of Change among the Iroquois (*Cultural Stability and Cultural Change,* Proceedings of the 1957 Annual Spring Meeting of the American Ethnological Society, American Ethnological Society, 111 Thomson Hall, University of Washington, Seattle, 1957, 30-5). Some broad comments, posed almost as questions, on cultural continuity among the Iroquois, on the type of element to survive, and on learning processes.

———*ed.* Seneca Indians by Asher Wright (1859) (*Ethnohistory,* IV(3), Summer, 1957, 302-21). Asher Wright was a member of a party sent by the American Board of Commissioners for Foreign Missions to report on conditions among the Seneca Indians of western New York in 1859. In addition to letters written during his stay at Cattaraugus, he prepared a lucid description of Iroquois religion, history, and social structure, compressed into a manuscript of 30 pages. Described previously by Fenton, it is here published in full.

Fenton, William N., Lyman H. Butterfield, and Wilcomb E. Washburn. *American Indian and White Relations to 1830.* Chapel Hill: The University of North Carolina Press. 1957. Pp. xi, 138. This volume grew from a conference held at Williamsburg by the Institute of Early American History and Culture. Fenton has contributed a stimulating essay on the aims and possible development of ethnohistory; his colleagues have brought together an enormous and logically arranged bibliography.

Findeisen, Hans. Der Adler als Kulturbringer im nordasiatischen Raum und in der amerikanischen Arktis (*Zeitschrift für Ethnologie,* LXXXI(1), 1956, 70-82). Myths of the eagle as culture hero are found in several Siberian tribes and also among the Alaska Eskimo, indicating an ancient culture contact.

Findlay, M. The Eskimo Population (*A Survey of the Aboriginal Populations of Quebec and Labrador,* ed., Jacob Fried, Eastern Canadian Anthropological Series, I, McGill University, Montreal, Autumn, 1955, 97-100). The author gives a brief and general statement concerning the present-day Eskimo population of Quebec and the Labrador peninsula, with notes on their history and on the principal sources of information.

Ford, James A. Early Man in America (*Natural History,* LXVI(8), Oct., 1957, 406-7). A brief summary of the sequence of prehistoric cultures in North America.

Forsyth, Thomas. The French, British, and Spanish Methods of Treating Indians, etc.: Draper MSS. 2T58-58$^{13}$ *(Ethnohistory,* IV(2), Spring, 1957, 210-17). An unsigned manuscript, owned by the State Historical Society of Wisconsin and here published for the first time, from internal evidence appears to have been written in 1818 by Thomas Forsyth, an Indian sub-Agent in Illinois. He expresses his views on the different policies followed by European nations in dealing with the Indians, with interesting suggestions regarding contemporary problems.

Franch, José Alcina. El Neolitico Americano y su Problematica (*Anais do XXXI Congresso Internacional de Americanistas, São Paulo, 1954,* São Paulo, 1955, II, 871-2). In seeking the origins of New World culture, which appears to have reached America in Neolithic times, the author considers that the possibility of trans-Atlantic influences has been neglected, and urges more extensive studies, including archæological, on both sides of the Atlantic.

Frederiksen, Svend. *Aspects of European Influence in West-Greenlandic Poetry* (Contribution of the Arctic Institute, Nr. A. 2, The Catholic University of America, Washington; Reprinted from *Edda,* Nr. 4, 1955.) Washington 17: The Catholic University of America. [1956.] Pp. 15. Modern Greenland poetry has been affected by European trends; the most important single influence was that of Spindler, a Moravian missionary of the nineteenth century who wrote Greenlandic poetry and who was, himself, influenced by European romanticism.

———Recent Literature in Greenland *(Books Abroad,* University of Oklahoma Press, 1956, 383-7). In contrast to the small amount of published material in any of the American Indian languages, there is considerable literature in the Greenland Eskimo language, especially in the form of poetry and hymns.

Fried, Jacob. Bibliography and Survey of the Literature (in *A Survey of the Aboriginal Populations of Quebec and Labrador,* ed., Jacob Fried, Eastern Canadian Anthropological Series, I, McGill University, Montreal, autumn, 1955, 1-64). This extensive bibliography pertaining to the Indians of Quebec is of considerable value as a research tool. It is arranged first by authors, and then by tribe: this is followed by a summary of the literature for each group, pointing out the areas of strength and weakness.

Friedl, Ernestine. Persistence in Chippewa Culture and Personality (*American Anthropologist,* LVIII(5), Oct., 1956, 814-25.) The pattern of personality among different Ojibwa groups appears to be surprisingly constant in spite of great differences in the extent to which their culture has been modified. It is suggested that this is due to a trait involving the expectancy of quick results, rather than of long-distance planning; this characteristic has led to a rapid assimilation of new elements, giving an unjustified impression of basic culture change.

Garigue, Philip. *A Bibliographical Introduction to the Study of French Canada.* Montreal: McCall University, Department of Sociology and Anthropology. 1956. Pp. 133. Believing that many of the frequently repeated generalizations about French Canada are, in fact, founded on misconceptions, the author feels that more accurate conclusions can be reached by using modern techniques of the social sciences. As an aid to such studies, he has prepared this bibliography of almost three thousand items, arranged under such categories as history, geography, social institutions, social change, cultural characteristics, education, and French-speaking groups outside Quebec province.

———French Canadian Kinship and Urban Life (*American Anthropologist,* LVIII(6), Dec., 1956, 1090-1101). A study carried out in Montreal indicates that urban life has caused little modification in the kinship pattern and usage of French Canada. The author gives a scholarly commentary on the factors involved.

———Mythes et Réalités dans l'Etude du Canada Français (*Contribution à l'Etude des Sciences de l'Homme,* III, Montréal, 1956, 123-32). Supporting his belief that many of the frequently repeated generalizations about French-Canada are found to be inaccurate when carefully examined, the author points out that the term folk-culture, in the usual anthropological usage, is inapplicable in regard to Quebec, and that the province is less rural than usually believed.

———St. Justin: A Case-Study in Rural French-Canadian Social Organization (*The Canadian Journal of Economics and Political Science,* XXII(3) Aug., 1956. 301-18). This important paper is fundamentally an acute re-analysis of the social structure of the parish of St. Justin, first studied by Gérin in 1886. Gérin postulated a folk economy as characteristic of rural French Canada, a hypothesis widely accepted and elaborated by Miner, Hughes, and others. Noting the difference in modern St. Justin, Garigue questions the validity of many of Gérin's conclusions, as well as of the writings dependent upon them.

———The Social Organization of the Montagnais-Naskapi (*Anthropologica,* IV, Ottawa, 1957, 107-35). The core of this article is a description of Montagnais-Naskapi social structure, mores, and religious beliefs and practices, compiled from published sources and presented in a logical manner. The hunting life of the Montagnais-Naskapi fitted easily into the culture of the white fur-traders, with the result that integration proceeded with no violent problems until the last few years when a drastic change has taken place with the diminution of game.

———Change and Continuity in Rural French-Canada (*Culture,* XVIII, 1957, 379-92). Believing that sociological studies of French-Canada, and particularly the assumption that it is an area of folk-societies, are untenable, the author makes a re-appraisal of French-Canadian culture. One of his important conclusions is the essential unity of urban and rural life in the province of Quebec.

Garvin, Paul L. Problems in American Indian Lexicography and Text Edition (*Anais do XXXI Congresso Internacional de Americanistas, São Paulo, 1954,* São Paulo, 1955, II, 1013-28). Kutenai, a language spoken in British Columbia, Idaho, and Montana, is chosen to illustrate linguistic problems connected with the presentation of lexical and textual material.

Gessain, Robert. Statuettes Eskimo Composites à Trois Personnages, (*Journal de la Société des Américanistes,* XLIV, 1955, 199-204). A description of two unusual carved wooden figures from the Angmassalik Eskimo, depicting a man, a woman, and a child. The individual figures are removable, and each fits into a cavity in the central block.

Giddings, J. L., Jr. A Flint Site in Northernmost Manitoba (*American Antiquity,* XXI(3), Jan., 1956, 255-68). Collections made at a workshop site on the Knife River, northern Manitoba, included large numbers of small burins and other delicate flint work. They resemble most closely material from Cape Denbigh in Alaska, and the Sarqaq culture of Greenland. In this interior area of northern Manitoba there was a marked absence of the large stone structures and pillars which the author describes finding at Eskimo habitations on the Maguse River near Eskimo Point. The excellent descriptions and photographs make this important site available for comparative study.

———Forest Eskimos (*University Museum Bulletin*, XX(2), Philadelphia, June, 1956, 1-55). Based on the recollections of three old men and one old woman, the author gives a vivid description of life among the Eskimo of the Upper Kobuk River, Alaska, in the 1888's, before the coming of the white man. Living in a forested area, the annual cycle of their fishing and hunting life resembled that of the interior Athapaskans, rather than that of the traditional Eskimo.

———"Pillows" and other Rare Flints (*Anthropological Papers of the University of Alaska*, IV(2), May, 1956, 117-120). The author gives possible explanations for the function of flint artifacts of unusual form found in early Eskimo sites in Alaska.

———The Burin Spall Artifact (*Arctic*, IX(4), 1956, 229-37). Microscopic analysis indicates that the tiny flakes or spalls struck from burins were used perhaps as engraving implements by the Eskimo. If so, this may be regarded as a new type of artifact, distinctive of early horizons in the north.

———Round Houses in the Western Arctic (*American Antiquity*, XXIII(2 Pt.1), Oct., 1957, 121-35). Round or oval houses, unlike any Eskimo types previously known, were found on the Choris Peninsula of the Bering Sea. Artifacts associated with them resemble those of the Norton culture, but it is impossible to assign them to a specific cultural horizon.

Goldschmidt, Walter, ed. *Ways of Mankind: Thirteen Dramas of Peoples of the World and How They Live*. Boston: Beacon Press. 1954. Pp. 212. With the support of the Ford Foundation, the National Association of Educational Broadcasters presented from Toronto a series of dramatized broadcasts illustrating various aspects of the lives of native peoples, including the Eskimo. In this volume the texts of the broadcasts are given, together with commentaries. This is the first serious attempt in North America to describe native life in popular form over the air; Goldschmidt has been successful in maintaining a balance between accuracy and popularization.

Gray, Elma E., and Leslie Robb Gray. *Wilderness Christians: The Moravian Mission to the Delaware Indians*. Toronto: The Macmillan Company of Canada Ltd. 1956. Pp. xiv, 354. In this historical study the authors trace the work of the Moravian missionaries as they moved westward with their Indian followers to the establishment of Fairfield on the Thames in 1792. Life in the settlement is described, including its destruction and the foundation of New Fairfield in 1815. with its decline and final abandonment in 1903.

Gray, Leslie R., ed. From Fairfield to Schönbrun—1798 (*Ontario History*, XLIX(2), Spring, 1957, 63-96). The Indian followers of the Moravian missionaries had been forced to leave Ohio after the Revolutionary War to settle at Fairfield on the Thames in southwestern Ontario. In 1798 it was possible to return to Ohio, and thirty-three Indians, under the leadership of Brother and Sister Zeisberger and Brother Mortimer, set out in seven dug-out canoes. Mortimer's diary of their travels, here published for the first time, gives a vivid picture of the Moravian Indians of that period.

Gunnerson, Dolores A. The Southern Athabascans: Their Arrival in the Southwest (*El Palacio*, LXIII(11-12), Nov.-Dec., 1956, 346-65). A few notes on the northern Athapaskans of Western Canada are included in this scholarly article on the southern Athapaskans of New Mexico and Arizona.

Gunther, Erna, trans. *The Tlingit Indians* by Aurel Krause. *See* Krause, Aurel.

Haekel, Joseph. Zum Problem der Konstanz und des Wandels in den Kulturen Nordwestamerikas (*Anais do XXXI Congresso Internacional de Americanistas, São Paulo, 1954*, São Paulo, 1955, I, 15-26). Examples of change and stability among Northwest Coast tribes are cited as illustrating theoretical concepts of culture growth.

Hallowell, A. Irving. *Culture and Experience*. Philadelphia: University of Pennsylvania Press. 1955. Pp. xvi, 434, 12 tbls. This volume, brought out by the Philadelphia Anthropological Society, in honour of Hallowell's sixtieth birthday, comprises twenty-one of his papers: Five of these have not previously been published; the remainder are reprinted from a wide range of journals and books. As the pioneer of culture and personality studies, it is fitting that many of the papers are grouped around this theme and, equally to be expected, around the western Ojibwa. These are studies of their personality, culture change, medicine, religion, and kinship, as well as a large amount of basic ethnology. The material is well organized and well arranged, a fitting tribute to a distinguished scholar.

———The Impact of the American Indian on American Culture (*American Anthropologist,* LIX(2), April, 1957, 201-17). In this well documented and scholarly article, the author analyses the influence of the Indians on modern European and American-European culture. He discusses not only traits that were borrowed directly, such as corn, canoes, and moccasins, but the more subtle and yet more important influences in literature, music, art, language, and philosophy.

Harbron, John D. Spaniards on the Coast (*The Beaver,* Outfit 288, Summer, 1957, 4-8). An account of Spanish explorations on the Pacific coast, with a few ethnological items culled from Spanish sources and notes on the prevalence of Spanish place names.

Harp, Elmer, Jr. An Archæological Reconnaissance in the Coronation Gulf Region (*Arctic,* VIII(4), 1955, 257-8). A summary report of the area covered in an archæological reconnaissance by air in the vicinity of Coronation Gulf, with a brief statement of the type of work undertaken and of the artifacts obtained.

———Prehistoric Hunters of Newfoundland-Labrador and their Relationship to New England Archæology (*Bulletin of the Massachusetts Archæological Society,* XVIII(4), July, 1957, 65-8). The culture of the Beothuk, and their predecessors in Newfoundland, resembles a hunting and collecting horizon of early archæological levels in New England, which probably survived later in Newfoundland than farther south. The Dorset Eskimo reached the northern part of the island, but there is little evidence of significant cultural contact between them and the Beothuk.

Harper, J. Russell. *Portland Point, Crossroads of New Brunswick History Preliminary Report of the 1955 Excavation.* (New Brunswick Museum, Historical Studies, IX.) Saint John: New Brunswick Museum. 1956. Pp. 51. Excavations primarily designed to identify the site of Fort La Tour, at Portland Point, New Brunswick, disclosed five levels of occupancy, of which the fort was the third. The lowest level produced "Red Paint" burials, on which were superimposed artifacts of late prehistoric or early historic Micmac. Appendix A describes a burial excavated near Pictou, N.S., of the period of Fort La Tour; Appendix B gives details of matting and netting techniques as shown in archæological specimens.

———Micmac Arm Bands (*Pennsylvania Archæologist,* XXVII(3-4), Dec., 1957, 135-6). From a Micmac burial, accidentally exposed by commercial excavation, two arm bands which had been preserved by contact with copper were recovered. Composed of leather and bark, this type of bracelet may have been the prototype of those used extensively in the later historic period.

———Two Seventeenth Century Micmac "Copper Kettle" Burials (*Anthropologica*), IV, Ottawa, 1957, 11-36). Two burial pits excavated near Pictou, give a clear picture of the method of interment, of grave fittings, and of the goods deposited with the deceased. The archæological record is comprehensive, and its interest is enhanced by descriptions from historical writings of mid-seventeenth century burials, the period to which these obviously belong. Each type of evidence supplements the other in an illuminating manner.

Harrington, Lyn, photographs by Richard Harrington. The Mackenzie Highway Leads Down North (*Canadian Geographical Journal,* LIII(2), Aug., 1956, 44-51). A popular article with a number of excellent photographs of Indians belonging to various Athapaskan-speaking bands.

Harrington, Richard, and Edward Weyer, Jr., Walrus Hunt (*Natural History,* LXV(1), Jan., 1956, 28-32). A graphic description of walrus hunting by the Iglulik Eskimo, illustrated with superb photographs.

Haugen, Einar. Syllabification in Kutenai (*International Journal of American Linguistics,* XXII(3), July, 1956, 196-201). An acute analysis of consonant clusters in the Kutenai language, particularly in relation to syllables.

Hawthorn, Audrey. *People of the Potlatch.* Vancouver: Vancouver Art Gallery with the University of British Columbia. [1956] Pp. 48, 109 plates. The core of this attractive and thoroughly worthwhile volume is the illustration of 109 specimens, selected from those displayed at a special exhibition in the spring of 1956 by the Vancouver Art Gallery in co-operation with the University of British Columbia. The articles have been well chosen to illustrate the craftsmanship of the coastal tribes, together with the stylisms characteristic of particular areas. Since art is meaningless without an understanding of the culture in which it exists, particular praise is due to the author for the well-balanced summary of the life of the coastal tribes of British Columbia.

Hawthorn, Harry B., ed. *The Doukhobors of British Columbia.* Vancouver: The University of British Columbia and J. M. Dent and Sons (Canada) Ltd. 1955. Pp. xii, 288. This volume contains a series of studies on various aspects of Doukhobor life; the result is an overall picture of this minority group, in the best anthropological tradition.

Hawthorn, H. B., C. S. Belshaw, and S. M. Jamieson. *The Indians of British Columbia: A Survey of Social and Economic Conditions: A Report to the Minister of Citizenship and Immigration.* Vancouver: University of British Columbia. 1955. 3 Vols. Pp. xiv, 1024. These three volumes constitute what is really an exhaustive "Domesday Book" study of the life of the modern Indians of British Columbia living south of the transcontinental line to Prince Rupert. The investigation was carried out by teams of sociologically and anthropologically trained students, working under direction of staff members of the University of British Columbia. Almost all aspects of Indian life and problems are treated, with particularly informative chapters on economics, education, attitudes to law and its enforcement, the family, and participation in government. Historical material is included, where it throws light on modern conditions, and cogent suggestions for government action are given.

Heizer, Robert F. Primitive Man as an Ecologic Factor (*Kroeber Anthropological Society Papers,* XIII, autumn, 1955, 1-31). The effect, and especially the destructive effect, of man upon all aspects of his environment, including animals, plants, and the earth itself, has been so far-reaching in recent years that it has attracted wide attention as a new phenomenon. On evidence from all parts of the world, including North America, the author postulates that human interference with nature has been significant since the Neolithic Period.

———Archæology of the Uyak Site, Kodiak Island, Alaska (*Anthropological Records,* XVII(1), Feb., 1956, vi, 1-114, 85 plates). During five expeditions between 1931 and 1938, the late Dr. Aleš Hrdlička collected a large amount of archæological material from the Uyak site on Kodiak Island. Primarily concerned with the discovery of osteological remains, Hrdlička recognized the importance of artifacts and made a huge collection, working with indefatigable energy during the short summer months. Although his methods did not measure up to modern standards, records were kept of the levels. Heizer, a student of Hrdlička on two expeditions, has described and illustrated the specimens in the best archæological manner. Drawing few conclusions, Heizer has made data from the Uyak site available to students of Eskimo and Northwest coast archæology. Donald Clark contributes a paper on a pottery-bearing site from Kodiak Island.

Herman, Mary W. The Social Aspect of Huron Property (*American Anthropologist,* LVIII(6), Dec., 1956, 1044-58). An analysis of seventeenth century writings shows that the Hurons of southern Ontario placed a high value on institutionalized gift-giving and that generosity brought prestige status.

———Wampum as a Money in Northeastern North America (*Ethnohistory,* III(1), winter, 1956, 21-33). Shell beads, generally known as wampum, were valued by the Indians of the eastern United States and Canada at the time of European contact. In the Dutch and English colonies of the seventeenth century, the beads became an accepted medium of exchange.

Hewes, Gordon W. Aboriginal Use of Fishery Resources in Northwestern North America (*Kroeber Anthropological Society Papers*, XIV, spring, 1956, 98-9). An abstract of a Ph.D. thesis dealing with the use of fish by the Indians in the area between California and the Mackenzie. The author believes that the aboriginal salmon fishery was sufficient to affect significantly the numbers of that fish.

Hickerson, Harold. The Genesis of a Trading Post Band: The Pembina Chippewa (*Ethnohistory*, III(4), autumn, 1956, 289-345). A historical description of movements of the Ojibwa (Chippewa) in the present Manitoba during the late eighteenth century, leading to the establishment of a settlement and trading post at Pembina, just south of the Manitoba–North Dakota boundary, which has been occupied continuously since that time.

Hockett, Charles F. Central Algonquian /t/ and /c/ (*International Journal of American Linguistics*, XXII(3), July, 1956, 202-7). A detailed linguistic study of two Algonkian sounds which aid in the reconstruction of basic proto-Algonkian forms.

———Central Algonquian Vocabulary: Stems in /K-/ (*International Journal of American Linguistics*, XXIII(4), Oct., 1957, 247-68). A highly technical linguistic paper on root stems in the Central Algonkian languages, virtually an instalment of a comparative dictionary.

Hoebel, E. Adamson. *The Law of Primitive Man: A Study in Comparative Legal Dynamics*. Cambridge: Harvard University Press. 1954. Pp. viii, 357. The Eskimo are one of the groups whose laws are analysed in this scholarly and exhaustive study of native jurisprudence.

Hoffman, Bernard G. *Historical Ethnography of the Micmac of the Sixteenth and Seventeenth Centuries*. Berkeley: University of California. 1955. A summary of a doctorate thesis describing Micmac culture in the period of early European settlement.

Hoijer, Harry. Athapaskan Kinship Systems (*American Anthropologist*, LVIII(2), April, 1956, 309-33). In this highly technical paper the author endeavours to reconstruct the proto-Athapaskan kinship system by a comparative study of kinship terms in the modern languages.

———The Chronology of the Athapaskan Languages (*International Journal of American Linguistics*, XXII(4), Oct., 1956, 219-32). Applying the principles of glotto chronology to the Athapaskan-speaking peoples, the author concludes that the western, British Columbian, groups split off about 1,100 years ago, and that the divergence of the southern tribes began shortly thereafter.

Holand, Hjalmar R. *Explorations in America before Columbus*. New York: Twayne Publishers, 1956. Pp. 381. A recapitulation and elaboration of the author's belief in the authenticity of the Kensington Stone, and of its importance as proof of Norse penetration to Minnesota in the fourteenth century. Included are reproductions of a number of pre-Columbian Scandinavian maps of North America.

———A Fourteenth Century Exploration in the Canadian Arctic (*The Minnesota Archæologist*, XXI(1), Jan., 1957, 1-11). The author asserts that a Norwegian expedition reached the vicinity of the Magnetic Pole in 1364. The evidence for this is a volume written by an English member of the expedition, a volume referred to by Hakluyt, but which has since been lost. Holand believes that the party divided, one group reaching Minnesota and engraving the Kensington Stone.

———Stones That Speak (*The Minnesota Archæologist*, XXI(1), Jan., 1957, 12-18). Norse travellers moored their boats by passing ropes through holes drilled through exposed boulders at the water's edge. The author has previously reported the finding of such perforated stones in Minnesota, and used them as evidence of Norse penetration to that area. Another perforated stone has been found in the northern part of Lake Winnipeg, and yet another is reported from the Nelson River.

Holmer, Nils M. *The Seneca Language, A Study in Iroquoian.* Uppsala and Copenhagen: Uppsala Canadian Studies, III. 1954. Pp. 116. A study of the Seneca language, based on a short field investigation. The analysis is less thorough than the title indicates.

———Amerindian Color Semantics (*International Anthropological and Linguistic Review,* II(3-4), 1955-56, 158-66). A broad study of the classification of colours and the terms used for them in various Indian languages.

Honigmann, John J. Are there Nahani Indians? (*Anthropologica,* III,, Ottawa, 1956, 35-38). Nahani has been applied to various Athapaskan-speaking tribes of northern British Columbia and the Yukon, but none of these have recognized the name as applicable to themselves. The word appears to be derived from the root, *na* (enemy), and to have been given to European explorers as the designation of groups who were little known and hostile to the group using the term.

———Notes on Sarsi Kin Behavior (*Anthropologica,* II, Ottawa, 1956, 17-38). A study of kindred obligations and interactions among the Sarsi of Alberta shows considerable divergence from northern Athapaskan practices, and resemblances to those of the Plains. Apart from the value of the data collected, this article is important in showing the amount of information which can still be obtained by a competent investigator, even among highly acculturated groups.

———People of the Muskeg: A Multivalence Ethnographic Study (*Research Previews* (Institute for Research in Social Science, University of North Carolina), IV(1), Feb., 1956, 11-9). The author describes some of the techniques used in study among the Northern Cree of Attawapiskat, of the results obtained, and some of his findings. It is a thoughtful analysis of the value of an approach having many facets.

———The Attawapiskat Swampy Cree: An Ethnographic Reconstruction (*Anthropological Papers of the University of Alaska,* V(1), Dec. 1956, 23-82). Based on field work as well as on extensive library research, this comprehensive article gives an excellent picture of Attawapiskat Cree culture at the period of contact. The material is logically arranged and clearly presented. Apart from its value as factual data on a branch of the Cree, . . . information of this quality is woefully lacking for the northern Algonkians, this report is valuable in showing how much it has been possible to collect within recent years, in spite of the decay of native culture.

Honigmann, John J., and Richard Carrera. Another Experiment in Sample Reliability (*Southwestern Journal of Anthropology,* XIII(1), Spring, 1957, 99-102). A study of the effectiveness and reliability of different methods of acquiring information in ethnological investigations, aimed at appraising their scientific results. This is a valuable contribution in the field of methodology as applied to ethnological research.

———Cross-Cultural Use of Machover's Figure Drawing Test (*American Anthropologist,* LIX(4), Aug., 1957, 650-4). An analysis of drawings of the human figure by Eskimo children at Great Whale River, Quebec, and by Cree children at Attawapiskat, Ontario, is presented as an aid to field workers who might wish to use this approach in cross-cultural research.

Huden, John C. Adventures in Abnakiland (*Vermont History,* XXV(3), July, 1957, 185-93). In this delightfully written account of his search for Abnaki historical data, the author comments on manuscript and map material preserved in the Province of Quebec, as well as in the Archives at Ottawa. Some linguistic information is also available from the descendants of the Abnaki at Odanak, a suburb of Pierreville.

———The White Chief of the St. Francis Abnakis—Some Aspects of Border Warfare: 1690-1790 (*Vermont History,* XXIV(3), July, 1956, 199-210: Part II, *Vermont History,* XXIV(4), Oct., 1956, 337-55). Joseph-Louis Gill, the son of two New England captives, became a leader of the Abnaki Indians of Quebec, an ally of the French, and a thorn in the flesh of the English in the last half of the eighteenth century. This scholarly account of his life includes a certain amount of information about the Algonkian-speaking Abnaki of that period.

Hultkrantz, Åke. *Conceptions of the Soul Among North American Indians.* (Ethnographical Museum of Sweden, Monograph Series, I.) Stockholm. 1953. Pp. 545. This study is an example of the classical pattern of anthropological research, in which data on a single subject are brought together and compared. It is the approach and type of theme which Frazer might have used. In choosing the soul beliefs of the North American Indians, the author has wisely treated his subject broadly and has collected a mass of material dealing with the soul in its widest context. He believes that dualism in soul beliefs is a basic American Indian feature, and his examples support this view. The literature has been studied exhaustively, and the examples are given logically and in excellent style. American scholars can be grateful to one from Europe for this pertinent and helpful assembling of data, in the best tradition of the area distribution technique, with its emphasis on the importance of the broad approach.

Hulse, Frederick S. Linguistic Barriers to Gene-Flow (*American Journal of Physical Anthropology,* XV(2), June, 1957, 235-46). A study of blood groups among Indians in southeastern British Columbia and northeastern Washington indicates greater resemblances in blood between tribes having linguistic affiliations than between those of general cultural similarity.

Human Problems in the Canadian North (in Canada, Department of Northern Affairs and National Resources, *Annual Report for the Fiscal Year 1954-1955,* Ottawa, 1956, 9-20). A thoughtful analysis of the problems of cultural adjustment facing the Eskimo and Indians of the Northwest Territories and the Yukon, and of the administrative difficulties involved.

Huntington, E. G. An Historical Basis for Vinland (*Bulletin of the Massachusetts Archæological Society,* XVIII(3), April, 1957, 61-3). On the basis of brief historical records, the author postulates that Vinland was in the vicinity of Cape Cod, and Markland was Nova Scotia.

Hymes, D. H. Na-Déné and Positional Analysis of Categories (*American Anthropologist,* LVIII(4), Aug., 1956, 624-38). After describing the varied opinions expressed at different periods concerning Na-Déné, the term used by proponents of a genetic connection between the Athapaskan, Skittagetan, and Koluschan stocks, the author puts forward a scholarly and reasoned argument for the value of morphology in tracing linguistic relationships. He applies this in respect to Na-Déné, showing significant morphological resemblances in the three component stocks.

———A Note on Athapaskan Glottochronology (*International Journal of American Linguistics,* XXIII(4), Oct., 1957, 291-7). The application of glottochronological methods to the study of Athapaskan languages gives evidence of the probable dates of the separation of the northern (Canadian) and southern branches of that stock.

Ibarra Grasso, Dick Edgar. Die letzte Eiszeit als notwendige Voraussetzung für die erste Besiedlung Amerikas (*Zeitschrift für Ethnologie,* LXXXI(2), 1956, 258-69). The author considers that America was first settled during the Palæolithic period, far earlier than usually believed. He notes resemblances between Acheulian and Mousterian tools, and early New World artifacts; such resemblances become more striking and significant when Solutrean implements are compared with those of Sandia, Folsom, and Yuma.

*The Indian News* (II(1-2), Jan.-May, 1956, quarterly). Ottawa: Indian Affairs Branch, Department of Citizenship and Immigration. This small newspaper, planned as a quarterly and issued by the Indian Affairs Branch for free distribution to Indians, gives a valuable picture of current Indian activities as well as of government policies. In a historical setting, it shows that the Indians of today are largely concerned with the same type of interest as white Canadians, with economic developments, with occupational openings, with conferences on government policy, with athletics, and with housing.

———(II(3-4), March-Sept., 1957, quarterly). Ottawa: Indian Affairs Branch, Department of Citizenship and Immigration. This little news-sheet, published by the Indian Affairs Branch, contains items of interest about the Canadian Indians.

Ives, Ronald L. An Early Speculation Concerning the Asiatic Origin of the American Indian (*American Antiquity*, XXI(4), April, 1956, 420-1). In 1794, a Jesuit scholar, Father Pfefferkorn, suggested that the ancestors of the Indians had reached America from Asia by way of what is now known as Bering Strait. Although this appears to be the earliest mention in print of this hypothesis, Pfefferkorn stated that it was based on an earlier treatise.

Jenness, Diamond, ed. The Chipewyan Indians: An Account by an Early Explorer (*Anthropologica*, III, Ottawa, 1956, 15-33). The manuscript, here published for the first time, is preserved in McGill University. It was written about 1800 by one of Mackenzie's contemporaries; Jenness has retained the original format except for minor changes in spelling and punctuation, and has added useful footnotes. The author gives an interesting contemporary picture of Chipewyan life, with emphasis on the hardships of the women and on the attitudes toward marriage and sex behaviour.

———*The Corn Goddess*. (National Museum of Canada, Bulletin 141, Anthropological Series 39.) Ottawa: Department of Northern Affairs and National Resources. 1956. Pp. viii, 111. This volume contains twenty-five legends, many of them previously unpublished, from the Iroquois, Ojibwa, Sarcee, Sekani, Carrier, Coast Salish, and Eskimo. The basis of selection is literary merit. The translation into English is free, but the spirit of the original has been retained with accuracy. The attractiveness of the book is increased by artistic black and white illustrations.

———*The Faith of a Coast Salish Indian*. (Anthropology in British Columbia, Memoir 3.) Victoria, B.C.: British Columbia Provincial Museum. 1955. Pp. 92. The field work on which this report is based was carried out in 1936 among the Katzie, a small Coast Salish tribe of the Lower Fraser. The manuscript was written at that time, but remained unpublished. As the title indicates, the information was derived largely from one individual, and the question inevitably arises of whether or not his beliefs were typical of the group. Following a long creation tale, there are chapters on supernatural beings, on shamanism, on guardian spirits, on winter dances, and on the rituals of life. Whether personal or tribal, this is an outstandingly vivid description of a northwest coast religion; it is particularly important in view of the almost complete cultural disappearance of the Katzie, and the paucity of material on the Coast Salish. A few pertinent comparisons are made with analogous beliefs of related groups on Vancouver Island.

———*Dawn in Arctic Alaska*. Minneapolis: University of Minnesota Press. 1957. Pp. 222. The first contact of Jenness with the Eskimo occurred in 1913 as a member of the Canadian Arctic Expedition when, under conditions almost unknown to the modern generation of anthropologists, he spent many months in the vicinity of Barrow. The author kept a diary, on which this volume is based. It is an extremely interesting description of incidents that belong to a culture that has long since passed away; one could wish that Jenness's modesty had not restrained him from greater elaboration on his personal experiences.

Johnson, A. M. Mons. Maugenest Suggests . . . (*The Beaver*, Outfit 287, Summer, 1956, 49-53). Apparently the "Point" blankets and copper kettles, which later became standard articles of trade, were first used in the 1780's on the suggestion of a French-Canadian servant of the Hudson's Bay Company.

Jones, H. M. Indian Affairs Branch (*Report of the Department of Citizenship and Immigration, 1955-56*, Ottawa, Queen's Printer, 1956, 45-79). Indian Affairs Branch (*Report of the Department of Citizenship and Immigration, 1956-57*, Ottawa, Queen's Printer, 1957, 49-98). Although these annual reports provide a factual summary of governmental activities in the Indian Affairs Branch, they go much further by giving a general picture of economic, educational, and social trends. These are considered under such headings as *employment, housing, and handicrafts*. This is followed by a summary on a regional basis, with a series of tables summarizing the size of reserves, expenditures, and details of school attendance.

Jury, Wilfrid. Huronia and the Seaway (*Ontario History*, XLVIII(4), autumn, 1956, 189-90). In addition to continuing work on a prehistoric Huron village site near Midland, Ontario, the University of Western Ontario undertook the excavation of the site of the Jesuit mission of Sault St. Louis, near Montreal, in an area to be flooded by the Seaway. The outlines of the mission church and of various houses were traced, and considerable material was recovered dating from the seventeenth and early eighteenth centuries.

Jury, Wilfrid, and Elsie McLeod Jury. *The Nine-Mile Portage from Kempenfeldt Bay to the Nottawasaga River* (Museum of Indian Archæology, Bull. 11). London: University of Western Ontario. 1956. Pp. vi, 35. One of the Indian routes between Lake Simcoe and Georgian Bay followed a nine-mile portage from Kempenfeldt Bay to Willow Creek, a branch of the Nottawasaga, and thence by canoe to Wasaga Beach on Lake Huron. This route was improved and used for forwarding supplies to the isolated British garrison at Michilimackinac during the War of 1812. The exact course of the portage had long been lost, but careful surveys and archæological investigations, combined with information from old-time settlers, enabled the authors to locate considerable sections.

Kellar, James H. The Atlatl in North America (*Prehistory Research* Series, III(3), Indiana Historical Society, Indianapolis, 1955, 281-352). This distribution study of the spear-thrower in North America is based on both archæological and ethnological data. The author believes that it once had a wide distribution, and discusses the probable reasons for its survival among the Eskimo and in Mexico.

Kemp, H. S. M. *Northern Trader*. Toronto: Ryerson Press. 1956. Pp. 253. In this description of the life of a trader in northern Saskatchewan fifty years ago, many observations on the Indians are included.

Kennedy, Clyde. The Nru Site (*Ontario History*, XLVIII(4), autumn, 1956, 192). A brief note on the discovery of a Point Peninsula site near Chalk River, Ontario, with a summary of the type of material excavated.

Kenton, Edna, ed. *Black Gown and Redskins*. London: Longmans, Green & Co., 1956. Pp. LVI, 527. A masterly condensation of the *Jesuit Relations*, in which the editor has succeeded in retaining the sentiments, feelings, and information of the original letters. It can, therefore, serve as an introduction to Algonkian and Iroquoian studies, viewed through seventeenth century eyes. There is a foreword by Kenton and a preface by David B. Quinn; this volume was first printed in 1926.

Kenyon, Walter A. A Prehistoric Cemetery (*Ontario History*, XLVIII(4), autumn, 1956, 183-4). A brief preliminary statement on the discovery of two adjacent ossuaries in Scarborough, near Toronto. It is estimated that they contained the disarticulated remains of nearly five hundred individuals, probably dating from the thirteenth century.

Kidd, Kenneth E. A Brief Study of the Human Remains from the Krieger Woodland Site in Southwestern Ontario (*Pennsylvania Archæologist*, XXVI(1), June, 1956, 15-26). This is an important study of the osteological material from a site near Chatham, Ontario, dating from the transition period between Late Woodland and Early Iroquois. Two groups of skeletons were excavated. One comprised a multiple interment of semi-disarticulated bodies; the other was of individual remains in refuse pits. In addition to the details of the actual interments, a large series of detailed measurements is given.

———Serpent Mounds Excavation (*Ontario History*, XLVIII(4), autumn, 1956, 187-8). The first full season's work on the extensive effigy mound on Rice Lake, near Peterborough, Ontario, has revealed a serpentine earthwork approximately 190 feet long, probably belonging to the Hopewell culture.

———Trading into Hudson's Bay (*The Beaver*, Outfit 288, winter, 1957, 12-17). Relatively little attention has been paid to the European goods traded to the Indians in exchange for theirs. The author describes what was used at York Factory, particularly in the 18th century, together with interesting observations on various aspects of such transactions.

King, Arden R. Aboriginal Skin Dressing in Western North America (*Kroeber Anthropological Society Papers*, XIV, spring, 1956, 97-8). An abstract of a Ph.D. thesis, describing the types of skin preparation used by the Indians of western North America; the age-area concept was employed in the postulation of age and centres of specialization.

King, D. R. Big Rock (*Canadian Geographical Journal*, LIII(2), Aug., 1956, 80-3). Okotoks, the name of a village in Alberta, appears to be derived from a Blackfoot word for *stone*, with reference to an enormous erratic boulder in the vicinity, on which are Indian carvings and figures in mythology.

Krause, Aurel. *The Tlingit Indians.* Trans. by Erna Gunther. Seattle: University of Washington Press. 1956. Pp. 310. The important study of the Tlingit made in 1885 by the Krause brothers has long been out of print, and few copies are in existence. This republication makes available a valuable source-book of contemporary data, and Dr. Gunther's comprehensive editorial notes have brought it up to date.

Kurath, Gertrude Prokosch. Catholic Hymns of Michigan Indians (*Anthropological Quarterly*, XXX(2), April, 1957, 31-44). Many of the hymns sung in Algonkian languages by Roman Catholic Indians of Michigan and southwestern Ontario combine elements of native and European origin. The author traces the history of European influence in the music of this area.

———Pan-Indianism in Great Lakes Tribal Festivals (*Journal of American Folklore*, LXX(276), April-June. 1957, 179-82). In Wisconsin, Michigan, and Ontario, a number of Indian groups are developing the practice of holding fairs or "pow-wows" in the summer. In part these are tourist attractions, but they tend also to bring together Indians from other areas, a mark of rising Indian consciousness.

———Wild Rice Gatherers of Today: A Sequel (*American Anthropologist*, LIX(4). Aug., 1957, 713). A note on the diminishing amount of wild rice gathering among the Indians of Wisconsin, Minnesota, and Michigan; its use is now practically limited to the Ojibwa.

LaFarge, Oliver. *A Pictorial History of the American Indian.* New York: Crown Publishers, Inc. 1956. Pp. 272. Though the title indicates that this volume uses illustrations to portray the history of the North American Indians, it does not indicate what a superb accomplishment it is. LaFarge follows the common pattern of describing the coming of man to the New World, followed by chapters on the culture areas, and, finally, one on the Indian in the modern world. The emphasis is on arts and crafts and way of life, rather than on social or political structure; the lavish use of illustrations, chosen wisely from many sources including museum specimens and early drawings, gives the accompanying text a vividness that is lacking in many books on the same theme. It is a valuable summary to the anthropologist, a brilliant introduction for the non-professional.

Larsen, Esther Louise, ed. The Eskimos, An American People (*Anthropological Papers of the University of Alaska*, V(2), May, 1957, 83-90). Peter Kalm, a scientific botanist, visited North America in the middle of the 18th century. Data which he collected on the Eskimo were utilized for a thesis by one of his students in 1756. The editor of this paper has brought together the information derived from Kalm on the Eskimo; it is of considerable importance in view of its antiquity.

Laughlin, William S., and Gordon H. Marsh. Trends in Aleutian Chipped Stone Artifacts (*Anthropological Papers of the University of Alaska*, V(1), Dec., 1956, 5-21). An analysis of the artifacts recovered at different levels from a large midden on Umnak Island in the Aleutians shows modifications both in form and in techniques of manufacture. The material is sufficiently extensive to be of value for comparative studies in the whole western Eskimo and Aleut area.

Laviolette, Gontran. Indian Banks of the Province of Quebec in *A Survey of the Aboriginal Populations of Quebec and Labrador*, ed., Jacob Fried, Eastern Canadian Anthropological Series, I, McGill University, Montreal, autumn, 1955, 90-6). A general statement regarding the distribution and location of Indian bands in Quebec at the present time, with notes on the history of each.

———Notes on the Aborigines of the Prairie Provinces (*Anthropologica,* II, Ottawa, 1956, 107-30). Described by the author as an introduction to the demography of the Plains Indians, this article gives a historical account of the treaties by which the natives surrendered their lands on the prairies, followed by population figures according to agency and tribe.

———Notes on the Aborigines of the Province of Ontario (*Anthropologica,* IV, Ottawa, 1957, 79-106). The author gives the tribal affinities and population of the Indians of Ontario, with a listing of the treaties by which their land was ceded, together with the present reserves, their location and size.

LEDER, LAWRENCE H., ed. The Livingstone Indian Records (*Pennsylvania History,* XXIII(1), Jan., 1956, 29-240). Livingstone assumed the position of Secretary for Indian Affairs at Albany in 1696, the first incumbent of that office. Meticulously accurate in the keeping of records, he made careful transcripts of all Indian treaties, as well as preserving those of the Albany town clerks who had previously acted as secretaries. This volume comprises the texts of documents from 1666 to 1723, an invaluable collection of source material on Indian history in eastern America for that period.

LEE, THOMAS E. New Light on Iroquois Origins (*Ontario History,* XLVIII(4), autumn, 1956, 185-7). Archæological work for the National Museum in 1956 included surveys in Quebec and the Ottawa valley, and the excavation of a large earthwork near Sarnia, Ontario. The culture appears to have relationship with western groups rather than with the Neutrals, a point of importance in tracing Iroquois origins.

———Position and Meaning of a Radiocarbon Sample from the Sheguiandah Site, Ontario (*American Antiquity,* XXII(1), July, 1956, 79). A specimen of peat from the Sheguiandah site, Manitoulin Island, Ontario, was dated by Carbon$^{14}$ analysis as 9130 ± 250 years. Since artifacts were found beneath the peat, it follows that the site is of great antiquity, probably preceding the last advance of glacial ice.

———The Antiquity of the Sheguiandah Site (*Canadian Field-Naturalist,* LXXI(3), July-Sept., 1957, 117-37). A well-documented, well-illustrated, and comprehensive report on the Sheguiandah site, Manitoulin Island. At least five occupation levels are reported, and the cultural components of each clearly explained. Carbon 14 determination of one of the later levels gives an age of 9,000 years; Lee postulates a possible antiquity of 30,000 years for the earliest deposits. There is disagreement concerning the geological age of this site; there is no disagreement concerning its importance. The data are clearly set forth in this significant article.

LEECHMAN, DOUGLAS. Fish Out of Water (*Canadian Geographical Journal,* LIII(4), Oct., 1956, 154-8). The author gives a broad overall picture of methods of catching and drying fish used by the Indians of the northwest. The illustrations are excellent.

———*Native Tribes of Canada.* Toronto: W. J. Gage & Co. Ltd. 1956. Pp. ix, 358. Written for the layman, this volume gives an accurate and well-balanced summary of the life of the Indians of Canada at the time of European contact. The emphasis is, perhaps, on the tools, the objects manufactured, and the way of life, rather than on abstract concepts of social structure or religious philosophy. The line drawings are well chosen, informative, and attractive; the maps are simple and useful. This book is a valuable contribution to Canadian anthropology, and fulfils a long-felt want in providing an accurate and readable summary for the teacher who wants a general picture of Canadian Indian life. The author is to be congratulated.

———The Trappers (*The Beaver,* Outfit 288, winter, 1957, 24-31). An interesting and informative description of the Indians who traded at York Factory, based largely on early journals and letters, and illustrated with early paintings and present-day photographs.

LEFEBRE, CHARLENE CRAFT. A Contribution to the Archæology of the Upper Kuskokwin (*American Antiquity,* XXI(3), Jan., 1956, 268-74). Excavation of a site on the upper Kuskokwin River, Alaska, produced specimens of no great antiquity, probably made by the ancestors of the Athapaskan-speaking Indians of the area, as well as a number of small obsidian artifacts of unknown association.

Lefebvre, Gilles R. Remarques Phonologiques pour une Orthographe du Dialecte Esquimau de l'Est de la Baie d'Hudson (*Anthropologica*, II, Ottawa, 1956, 39-59). This is a scholarly study of the vocal sounds found among the Eskimo on the northeast side of Hudson Bay and the Belcher Islands, with a careful analysis of the physiology involved.

Leitch, Adelaide. Handicrafts under the Midday Moon (*Canadian Geographical Journal*, LII(3), March, 1956, 114-7). A popular article on handicrafts at Yellowknife, including observations on local Indian birchbark work and embroidery as well as on Eskimo soapstone carving. Specimens of this type of stone sculpture are less known than those from the Eastern Arctic.

———Montagnais of the Cote Nord (*The Beaver*, Outfit 287, summer, 1956, 19-23). In summer the Montagnais Indians occupy a few small villages on the north shore of the St. Lawrence where canoes are still manufactured. The article is illustrated with excellent photographs of this industry.

Levi, M. Carolissa. *Chippewa Indians of Yesterday and Today*. New York: Pageant Press. 1956. Pp. 385. A comprehensive but uncritical description of the Ojibwa (Chippewa) with special reference to those bands living in Wisconsin, written with enthusiasm and devotion, rather than objective scholarship.

Lewis, Marion, Bruce Chown, and Hiroko Kaita. Further Observations on the Blood Factor Di$^a$ (*Nature*, CLXXVIII, Nov. 17, 1956, 1125). The presence of the blood factor Di$^a$ among Cree Indians of northern Manitoba supports the hypothesis that it may be a Mongoloid trait; its absence among 156 Eskimo from scattered localities is surprising.

Lewis, Marion, Hiroko Ayukawa, and Bruce Chown. The Blood Group Antigen *Diego* in North American Indians and in Japanese (*Nature*, CLXXVII, June 9, 1956, 1084). A note reporting the presence of the blood group Antigen *Diego* among Ojibwa Indians.

Li, Fang-Kuei. A Type of Noun Formation in Athabaskan and Eyak (*International Journal of American Linguistics*, XXII(1), Jan., 1956, 45-8). The Eyak Indians of the Copper River Delta have a system of noun formation similar to a type that is widespread in the Athapaskan languages. The author believes that this indicates a relationship between the two, but does not prove that Eyak belongs to the Athapaskan stock.

Linné, S. The Bering Isthmus–Bridge between Asia and America (*Ethnos*, XX(4), Stockholm, 1955, 210-5). On the basis of geological factors and of water-levels, the author believes that Bering Strait was not covered by water at the time of the last advance of the ice, and that, accordingly, the ancestors of the American Indians could have crossed dry-shod from Asia.

Lips, Eva. *Das Indianerbuch*. Leipzig: Veb F. A. Brockhaus Verlag. 1956. Pp. 443. Wissler was the first American anthropologist to attempt an overall description of the Indians and their culture; his example has been followed by other American writers, but this is, I believe, the first comparable study by a European scholar. Lips' approach is logical. She deals first with the coming of man to the New World, then with a description of his culture on a regional basis. Then follow chapters on dominant themes such as religion, folklore, horticulture, and domestication of animals, with, finally, a synthesis of the Inca realm, and a picture of a modern society, the Montagnais-Naskapi, which is enhanced by field work. A wide range of literature is cited.

———*Die Reisernte der Ojibwa-Indianer Wirtschaft und Recht eines Erntevolkes*. Berlin: Akademie-Verlag GmbH. 1956. Pp. xv, 391. A rather ponderous description of the Ojibwa, based in part on field work and brightened by an overwhelming enthusiasm for "her" people, combined with a somewhat uncritical attempt to fit the gathering of wild rice into a niche of a theoretical framework of cultural evolution.

The Living Stone (*The Beaver*, Outfit 286, spring, 1956, 12-19). A series of photographs by Paul Chipman of Eskimo carvings in stone from the Eastern Arctic.

Loudon, Peter. Kwakiutl Totem (*Canadian Geographical Journal,* LIII(4), Oct., 1956, 146–51). The tallest totem-pole in the world, 127 feet in height, has recently been carved by three Kwakiutl craftsmen, and set up in Beacon Hill Park, Victoria. Its erection is an example of the revived interest in Indian art on the part of the white man and an appreciation of the skill of one of the last native sculptors.

Lowie, Robert H. The Military Societies of the Plains Cree (*Anais do XXXI Congresso Internacional de Americanistas, São Paulo, 1954,* São Paulo, 1955, I, 3-9). The exercise of police functions by men's societies among the Plains Indians is so important and so widespread that the practice was commonly assumed to have originated in that area. Early records indicate a similar behaviour pattern, however, in the eastern woodlands. The disciplinary rôle of warrior societies among the Plains Cree, a tribe of eastern origin, can be interpreted as an example of this woodland trait partially adapted to prairie culture.

Lowther, Gordon. Archeology in the Province of Quebec (In *A Survey of the Aboriginal Populations of Quebec and Labrador,* ed., Jacob Fried, Eastern Canadian Anthropological Series, I, McGill University, Montreal, autumn, 1955, 65-73). A general statement concerning the archæology of Quebec and some of its problems.

Lundman, Bertil. Züge der (vorcolumbischen) Anthropologie Amerikas (*Ethnos,* XX(4), Stockholm, 1955, 216-23). On the basis of physical characteristics, particularly of the skull, the author believes that the pre-Columbian population of the Americas comprised several different types.

Lussagnet, Suzanne. Bibliographie Américaniste (*Journal de la Société des Américanistes,* XLIV, 1955, 275-348). This exhaustive annual bibliography continues to be the most convenient finding-list of publications on North American anthropology, particularly of European sources. The references are arranged under the usual headings of divisions of anthropology, and each is then subdivided on a geographical basis.

Lussagnet, Suzanne, and Madeleine Doré. Bibliographie Américaniste (*Journal de la Société des Américanistes,* XLV, 1956, 247-370). This important annual bibliography, particularly valuable for its European material, gives a comprehensive listing of anthropological publications for North and South America and the West Indies. It is divided on a subject basis, and further divided according to geographical areas.

McCook, James. Pow-Wow (*The Beaver,* Outfit 287, summer, 1956, 34-7). Ability in oratory was a characteristic of many Indian chiefs.

Macfie, John. Crafts of the Cree (*The Beaver,* Outfit 288, autumn, 1957, 53–7). A well-illustrated description of canoes, snow-shoes, cat-tail mats, and a few other crafts still practised by the Cree.

———Bannock (*The Beaver,* Outfit 287, autumn, 1956, 22-3). A description, illustrated with photographs, of the making of bannock, which, being easily carried and prepared, has become the staple food of the northern Indians when travelling.

Mackay, J. R., and W. H. Mathews. Superficial geology of the Firth River archæological site, Yukon Territory (*Arctic,* IX(3), 1956, 210-11). A brief note on archæological work in the Firth River valley, Yukon Territory.

McKelvie, B. A. Colonel Ebey's Head (*The Beaver,* Outfit 287, summer, 1956, 42-5). In 1856 a number of Tlingit Indians, including an influential chief, were killed in the bombardment of their village by a United States war vessel. In revenge a party of Tlingit travelled to Puget Sound and killed a prominent American, in conformity with the principle that a chief's death required the death of a person of equal rank. The head was carried off and the scalp removed; this was later recovered by an officer of the Hudson's Bay Company.

MacLachlan, Bruce B. Notes on some Tahltan Oral Literature (*Anthropologica,* IV, Ottawa, 1957, 1-9). Anecdotes and myths collected from white and Indian informants at Telegraph Creek illustrate a number of points of Tahltan culture.

MacNeish, June Helm. Leadership among the Northeastern Athabascans (*Anthropologica*, II, Ottawa, 1956, 131-63). By a careful study, based largely on the writings of the early explorers, the author summarizes the concepts and functions of chieftainship, as well as the different kinds of leaders, found among the northeastern Athapaskans at the time of European contact.

———Problems of Acculturation and Livelihood in a Northern Indian Band (*Contributions à l'Etude des Sciences de l'Homme,* III, Montréal, 1956, 169-81). The author gives a clear summary of the problems of adjustment among the Slave Indians of the Mackenzie valley. Although the white population is small, and there is no struggle for land, the tensions of culture contact are apparent and are analysed under the headings of economics, livelihood, social organization, values, and race relations.

———ed. The Poole Field Letters (*Anthropologica,* IV, Ottawa, 1957, 47-60). Mr. Poole was for many years a trapper and prospector in the Yukon and Northwest Territories and worked repeatedly with members of the Geological Survey. Interested in the Indians of the area between the Yukon and Mackenzie rivers, he wrote long personal letters to friends on the staff of the survey. The one here printed was written in 1913 and contains a mass of miscellaneous data on the reputed history, customs, and way of life of the Athapaskan-speaking Indians of that region.

MacNeish, Richard S. Archæological Investigations in the Yukon Territory (*Arctic,* VIII(3), 1955, 195). A brief statement on the results of archæological work on the Firth River, Yukon Territory, where an extensive stratified site was discovered.

———Archæological Reconnaissance of the Delta of the Mackenzie River and Yukon Coast (National Museum of Canada, Bulletin 142, *Annual Report for the Fiscal Year 1954-55,* Ottawa, 1956, 46-81). In this report of an archæological reconnaissance in the Mackenzie delta and the adjacent coast, the author describes the material obtained from thirty sites. While much of it is of characteristic Thule culture, other specimens show relationship to the Cape Denbigh complex. This little-known area is obviously of great archæological importance.

———The Engigstciak Site on the Yukon Arctic Coast (*Anthropological Papers of the University of Alaska,* IV(2), May, 1956, 91-111, 6 pls.). This is a comprehensive account of a site on the Firth River in the Yukon, near the Alaska border and twenty miles from the Arctic Ocean. Though the author modestly describes it as a progress report, his description, combined with excellent illustrations of representative artifacts, gives an adequate picture of this important location. Nine sequential strata were recognized. The oldest, apparently of considerable antiquity, contained generalized tools. Later levels produced tools showing resemblances both to early horizons in Alaska, and to those of the Northwest Territories; in fact most types occurred up to artifacts belonging to the ancestors of the modern Eskimo. This is a most important article.

———Prehistoric Invasion (*The Beaver,* Outfit 287, summer, 1956, 46-8). In this preliminary account, MacNeish describes the results of the archæological investigation of a site on the Firth River in the Yukon, near the Alaska border. It comprised *nine* stratified horizons, of which the lowest may be the oldest ever found in Canada.

———Summary of Archæological Investigations in Southeastern Manitoba (National Museum of Canada, Bulletin 142, *Annual Report for the Fiscal Year 1954-55,* Ottawa, 1956, 25-45). Scientific archæological work in southeastern Manitoba, although described as preliminary, has already led to significant, though tentative, conclusions. Six culture layers have been found, of which the earliest appear to have affinities with the Plains. Woodland type pottery seems to have reached Manitoba from the east, a point of importance in regard to the hypothesis of the diffusion of this type from Asia.

———Archæological Investigations in the Arctic and Subarctic, 1957 (*Arctic,* X(3), 1957, 189-90). A brief statement of scientific archæological work carried out in 1957.

McNickle, D'Arcy. Process or Compulsion (*America Indigena*, XVII(3), Julio, 1957, 260-70). In a thoughtful and thought-provoking article, the author considers some of the basic problems of Indian assimilation in the United States, viewed ethically as well as historically and legally. The principles involved are equally relevant for Canada.

Mahr, August C. Walam Olum, I, 17: A Proof of Rafinesque's Integrity (*American Anthropologist*, LIX(4), Aug., 1957, 705-8). On the basis of grammatical analysis, the author concludes that Rafinesque must have recorded the text of the *Walam Olum* from a Delaware Indian informant, and not have written it from the dictionaries of Moravian missionaries.

Malaurie, Jean. The French Geographical Expedition to Thule, 1950-1951: A preliminary Report (*Arctic*, VIII(4). 1955, 202-14). This report on work in northwest Greenland contains important data on the demography of the Eskimo of the Thule area, material which is of significance in studies of survival rates of other isolated communities.

———*The Last Kings of Thule: A Year among the Polar Eskimos of Greenland.* New York: Thomas Y. Crowell Company. 1956. Pp. 295. This account by a French geographer contains a wealth of informative, anecdotal material on the Greenland Eskimo, with whom he lived and worked for a year.

Malchelosse, Gérard. Jacques Cartier va à Hochelaga ... (*Les Cahiers des Dix*, XXI, 1956, 31-53). A historical commentary on Cartier's voyages, recapitulating some of his observations on the Indians whom he met in the St. Lawrence valley.

Malin, James C. The Grassland of North America: Its Occupance and the Challenge of Continuous Reappraisals (in *Man's Role in Changing the Face of the Earth*, ed. William L. Thomas, Jr., University of Chicago Press, Chicago, 1956, 350-66). In this scholarly and provocative essay the author points out the essential instability of the Plains grasslands; he believes that drought and dust-storms are not new phenomena. The conclusions are worthy of serious consideration by anyone working on the ethnology of the prairies.

Malouf, Carling. The Montana Western Region (*Research Studies of the State College of Washington*, XXIV(1), 1956, 45-52). Recent archæological work has revealed a distinctive regional specialization in western Montana and eastern Idaho, extending into southeastern British Columbia. The sequence of cultures in this mountainous region is unknown.

Manning, T. H. Narrative of a Second Defence Research Board Expedition to Banks Island, with Notes on the Country and its History (*Arctic*, IX(1-2), 1956, 2-77). In this account, which is primarily geographical, is included a description and photographs of house remains and of artifacts from the southwest of Banks Island. They are of Thule Eskimo culture.

Marsh, Gordon H. A Stone Lamp from Yukon Island, Alaska (*Anthropological Papers of the University of Alaska*, IV(2), May, 1956, 113-5, 2 pls.). A description with adequate illustrations, of an unusual early Eskimo-Aleut stone lamp carved in animal form.

Marsh, Gordon H., and William S. Laughlin. Human Anatomical Knowledge among the Aleutian Islanders (*Southwestern Journal of Anthropology*, XII(1), spring, 1956, 38-78). The Aleuts have greater knowledge of, and interest in, human anatomy than most natives. The authors discuss the probable reasons for this, and the extent to which this knowledge was used in medical and surgical practices. They also note similarities among the Western Eskimo in contrast to a lack of interest among the Central and Eastern Eskimo. A detailed vocabulary of anatomical terms is given.

Marshall, Ruth. Introducing the Ontario Archæological Society (*Ontario History*, XLVIII(4), autumn, 1956, 195-6). The Ontario Archæological Society is a group of competent and enthusiastic amateur archæologists who have been conducting archæological work in the vicinity of Toronto. A preliminary description is given of the results of work at a prehistoric Iroquois village and ossuary near Markham.

Maxwell, Thomas J., Jr., Pontiac Before 1763 (*Ethnohistory,* IV(1), winter, 1957, 41-6). A brief historical note on Pontiac's early life, with items of information on British and French policy with regard to Indians in the mid-eighteenth century.

Moody, Harry. Birch Bark Biting (*The Beaver,* Outfit 287, spring, 1957, 9-11). A description with illustrations of the techniques of making designs by biting folded pieces of birch bark, as practiced by the Cree Indians of northern Saskatchewan.

Moore, Omar Khayyam. Divination—A New Perspective (*American Anthropologist,* LIX(1), Feb., 1957, 69-74). An ingenious theory with regard to the function of divination is tested by a study of scapulimancy among the Montagnais-Naskapi of Quebec as reported by Frank G. Speck.

Mueller, F. *Die Religionen der Waldlandindianer Nordamerikas.* Berlin: D. Reimer. 1956. Pp. 392. A comprehensive summary of the religious beliefs of the Indians of the Eastern Woodlands, based upon a thorough coverage of the literature, and supplemented by access to unpublished data collected by F. G. Speck. The author is particularly interested in cults and in the interpretation and symbolism of widespread myths.

Müller, Werner. *Welbild und Kult der Kwakiutl-Indianer.* (Studien zur Kulturkunde, XV.) Wiesbaden: Franz Steiner Verlag. 1955. Pp. viii, 127, 8 figs. This is an able synthesis of Kwakiutl culture, based on extensive published data. The presentation is clear, logical, and well-balanced. On the basis of resemblances to rituals in the Great Lakes region and California, the author propounds a number of broad hypotheses concerning culture origins.

Murdock, George Peter. World Ethnographic Sample (*American Anthropologist,* LIX(4), Aug., 1957, 664-87). An important paper on the sampling technique as applied to culture traits. If tribes are selected with care, on the basis of geographical and ecological considerations, the percentage of occurrence of traits among them can be accepted as indicative of the occurrence of the trait for the world at large.

Murdoch, Peter. Seeguapik, Artist (*The Beaver,* Outfit 287, Winter, 1956, 24-31). A series of excellent photographs, with brief explanatory captions, illustrating the carving of stone by an Eskimo craftsman in the eastern Arctic.

Murphy, Robert F., and Julian H. Steward. Tappers and Trappers: Parallel Process in Acculturation (*Economic Development and Cultural Change,* IV(4), July, 1956, 335-55). The process of cultural adjustment among the Mundurucú of Brazil, who are primarily dependent upon the collecting of rubber, and the Algonkian hunters of northeastern Canada, has followed similar lines. In each case the weak social structure of pre-contact period has given place to a society in which the nuclear family has become more important; this unit has proved most effective under the new conditions of dependence upon goods obtained from European traders.

The Native Voice (x(1-12), Jan.-Dec., 1956, monthly). Vancouver: Native Voice Publishing Co., 325 Standard Building. This monthly paper continues to publish news written by Indians, about Indians, and for Indians. It gives a cross-section of their interests and activities, particularly in British Columbia, and is therefore of value as a permanent record of the changing culture of the Indians.

———(XI(1-12), Jan.-Dec., 1957, monthly.) Vancouver: Native Voice Publishing Co., 325 Standard Building. While the *Native Voice* continues to fulfil its function of recording news, particularly items about Indians or of interest to Indians, it also continues to provide factual data on the changing aspects of Indian activities in Canada which are of lasting value to the student of culture integration.

Newcomb, William W., Jr. *The Culture and Acculturation of the Delaware Indians.* (Museum of Anthropology, Anthropological Papers, X.) Ann Arbor: University of Michigan. 1956. Pp. 141. In this scholarly and well-documented study, the author first gives a reconstruction of Delaware life as it must have been at the time of contact, followed by a history of tribal movements and culture change. The few survivors live today in Oklahoma and Ontario.

Newman, Marshall T. The Physique of the Seneca Indians of Western New York State (*Journal of the Washington Academy of Sciences,* XLVII(11), Nov., 1957, 357-62). An unexpected addition to the sparse data on the physical characteristics of the eastern Indians has come to light in an obscure government document giving measurements of 503 reputedly full-blooded Iroquois. These were taken near Buffalo in 1869 in a survey of body weight and size carried out by the United States government in order to establish norms for military equipment to be provided for potential army recruits.

Northern Administration and Lands Branch (in Canada, Department of Northern Affairs and National Resources, *Annual Report for the Fiscal Year 1954-1955,* Ottawa, 1956, 23-33). This administrative report contains items of information on economic conditions among the Eskimo, and of Government action for the protection of the natives.

Osborne, Douglas. Evidence of the Early Lithic in the Pacific Northwest (*Research Studies of the State College of Washington,* XXIV(1), 1956, 38-44). Although there is little concrete evidence of human occupancy of the Northwest at a period contemporary with early sites on the Plains, five projectile points of Clovis, Plainview, and Scottsbluff types from Oregon, Washington, and British Columbia indicate that this area may, perhaps, have been populated at an earlier period than generally believed.

———Pottery in the Northwest (*American Antiquity,* XXIII(1), July 1957, 28-34). Pottery and clay artifacts have a wider distribution in the Northwest than was formerly believed. Pottery was made by the Kutenai of southeastern British Columbia, and clay bowls were found at Cattle Point, on San Juan Islands in the Strait of Juan de Fuca.

Osborne, Douglas, Warren W. Caldwell, and Robert H. Crabtree. The problem of Northwest Coastal-Interior Relationships as seen from Seattle (*American Antiquity,* XXII(2), Oct., 1956, 117-28). This is an important analysis of the sequence of prehistoric culture on the Northwest Coast, with cogent analysis of the hypothesis put forward by Borden of the University of British Columbia. The Seattle scholars recognize the presence of culture impacts from the interior, and the possibility of early circumpolar cultural manifestations, but they believe that it is too soon for conclusive generalizations for the whole area.

Oswalt, W. H. A New Collection of Old Bering Sea Island Artifacts (*Anthropological Papers of the University of Alaska,* V(2), May, 1957, 91-6). Twenty-five specimens of Old Bering Sea Island culture have recently been found in an old collection in the University of Alaska, and a whaling-harpoonhead from the same culture was purchased on St. Lawrence Island. These specimens are described and illustrated, providing further data on the art and artifacts of this period.

Pargellis, Stanley. The Problem of American Indian History (*Ethnohistory,* IV(2), spring, 1957, 113-24). It is difficult to write the history of early white and Indian contact with balance and perspective. On the one hand there is the complete absence of documentary evidence from Indian sources; on the other, the letters and accounts from white observers were largely written by untrained individuals whose judgment was frequently swayed by sentiment based on local incidents. Scholarly research casts doubt on the credibility of some of the oft-repeated tales of Indian brutality; several of them appear to belong to the realm of fancy rather than of history.

Payne, Margaret S. Social Services for Indians (*The Social Worker,* XXIV(4), Ottawa, April–May, 1956, 25-7). A note on the social services for Indians carried out by the Department of Indian Affairs.

Petersen, Mrs. Sidney A. A Practical Application of Dr. Densmore's Studies in Ethnology (*The Minnesota Archæologist,* XXI(2), spring, 1957, 5-7). A note on the stimulating influence of the work and writings of the distinguished ethnologist, France Densmore, in encouraging modern Ojibwa crafts in Minnesota.

Peterson, Harold L. *Arms and Armor in Colonial America 1526-1783*. Harrisburg, Pa. The Stockpole Co. 1956. Pp. 350. This comprehensive study includes accurate information on the firearms used in America during the Colonial period. Since material of this type is found frequently in archæological excavations, the volume is of significance in dating and identifying sites.

Phillips, R. A. J. The Eastern Arctic Patrol (*Canadian Geographical Journal*, LIV (5), May, 1957, 190-201). An attractively illustrated description of the work of the annual patrol vessel in the eastern Arctic, with excellent photographs of Eskimo and authoritative comments on current problems of administration in the north.

Platt, Rutherford. A Visit to the Living Ice Age (*National Geographic Magazine*, CXI(4), April, 1957, 525-45). A popular article, with beautiful photographs, giving a few observations on the Eskimo of the Eastern Arctic and Greenland.

Plischke, Hans. Eine Bilderschrift auf Birkenrinde, Odjibeway-Indianer, (*Zeischrift für Ethnologie*, LXXXII(2), 1957, 161-3). A brief illustrated description of an Ojibwa painted scroll on birch-bark, found in 1859 and preserved in a German museum.

Radin, Paul. *The Trickster*, New York: Philosophical Library. 1956. Pp. x, 211. The core of this volume is the trickster cycle of the Winnebago, but Radin describes, also, the principal features of this type of myth among the Assiniboine and the Tlingit. Jung and Kerenyi add comments in the form of psychoanalytic interpretations.

Radwanski, Pierre. Physical Anthropological Problems of the Province of Quebec (In *A Survey of the Aboriginal Populations of Quebec and Labrador*, ed., Jacob Fried, Eastern Canadian Anthropological Series, I, McGill University, Montreal, autumn, 1955, 85-9). In this brief sketch the author outlines some of the problems of research in physical anthropology among the Eskimo and Indians of Quebec, and summarizes the scanty literature on the subject.

Rands, Robert L. Comparative Notes on the Hand-Eye and Related Motifs (*American Antiquity*, XXII(3), Jan., 1957, 247-57). There are a number of resemblances in art motifs between the Northwest Coast and cultures in Mexico and the southeastern United States, including the depiction of an eye upon the palm of the hand. Whether these similarities have historical significance is problematical.

Raynor, Wilma. Windigo Woman (*The Beaver*, Outfit 288, summer, 1957, 32-3). An incident that occurred recently among the Cree of northern Manitoba illustrates a present-day belief in *windigo*.

Renaud, André. Les Canadiens de Descendance Indienne (*Revue de l'Université d'Ottawa*, XXVII(4), Oct.–Dec., 1957, 405-26). After sketching basic features of the way of life of the Indians at the time of European contact, the author outlines the processes of culture change and points out that their descendants do not enjoy the same privileges and prosperity as the later arrivals, the white Canadians of European ancestry. He lays the blame for this condition on lack of interest and responsibility by the Canadian general public.

———Les Canadiens de Descendance Indienne (*Anthropologica*, IV, Ottawa, 1957, 139-58. A re-publication of the article just cited.

Rich, E. E., ed., assisted by A. M. Johnson. *Moose Fort Journals, 1783-85*. (Hudson's Bay Record Society, XVII.) London: The Society. 1954. Pp. xxx, 392, with maps. This record of the activities of the Hudson's Bay Company in the James Bay area in the late eighteenth century contains much information about the life of the Indians at that period.

Richards, Cara B. Matriarchy or Mistake (*Cultural Stability and Cultural Change*, Proceedings of the 1957 Annual Spring Meeting of the American Ethnological Society, American Ethnological Society, 111 Thomson Hall, University of Washington, Seattle, 1957, 36-45). Basing her findings on a re-examination of early writings, the author concludes that Iroquois women had less power at the period of initial European contact than has been commonly assumed, and that their influence has been increasing since colonial times.

Ridley, Frank. An Archæological Reconnaissance of Lake Abitibi, Ontario (*Ontario History,* XLVIII(1), winter, 1956, 18-23). (*Pennsylvania Archæologist,* XXVI (1), June, 1956, 32-6). In these two semi-popular, but extremely informative and important articles, the author shows that artifacts, both of the Point Peninsula Culture and of various Iroquois horizons, occur on the shore of Lake Abitibi in northern Ontario. This indicates considerable contact in prehistoric times between the corn-growing Indians of southern Ontario and the hunters of the northern forests.

———Exploring in Michipicoten (*Ontario History,* XLVIII(4), autumn, 1956, 195). A brief statement of archæological work on the north shore of Lake Superior at a site containing pottery representing a number of cultural horizons; this may prove of considerable importance in tracing prehistoric Indian movements in Northern Ontario.

———Cultural Contacts of Iroquoian and Plains (*Pennsylvania Archæologist,* XXVII(1), June, 1957, 33-8). Archæological investigations at Michipicoten, on the north shore of Lake Superior, have revealed pottery having affinities with types found on the Plains, as well as with Iroquoian styles. This evidence indicates greater prehistoric contact than previously postulated.

———A Preliminary Comment on Arctic Regionalism (*Pennsylvania Archæologist,* XXVII(3-4), Dec., 1957, 145-8). Archæological investigations on the Montreal River, near Lake Temiskaming, Ontario, have disclosed various types of artifacts showing striking resemblances to forms found in the Arctic.

Rioux, Marcel. Notes sur l'urbanisation d'une Communauté Québécoise (National Museum of Canada, Bulletin 142, *Annual Report for the Fiscal Year 1954-55,* Ottawa, 1956, 114-20). The author gives a summary of a sociological study of culture change in the village of Laval-sur-Montmorency near Quebec.

———Remarques sur les Concepts de Schème et de Modèle Culturels (*Anthropologica,* II, Ottawa, 1956, 93-106). The author gives a scholarly analysis of the concept of *culture pattern,* with particular reference to the meaning as it appears when translated into French. The article is a contribution to the philosophical and theoretical aspects of modern anthropology.

———Remarques sur les Valeurs et les Attitudes des Adolescents d'une Communauté Agricole du Québec (*Contributions à l'Etude des Sciences de l'Homme,* III, Montréal, 1956, 133-43). This anthropological study of a purely agricultural French-Canadian community in Bellechasse County, Quebec, is concerned primarily with the attitudes, values, and ambitions of adolescent boys and girls. One outstanding feature is the importance of religion.

———*Belle-Anse.* (Musée National du Canada, Bulletin CXXXVIII, Série Anthropologique, XXXVII.) Ottawa: Imprimeur de la Reine. 1957. Pp. 125. This is a comprehensive study, in the best anthropological tradition, of the village of Belle-Anse in Gaspé, Quebec. The author deals with such fundamental matters as ethnic ancestry, economic pursuits, social structure, and attitudes concerning religion and medicine. It gives a vivid contemporary picture of a rural French-Canadian community in this area.

———Relativisme Culturel et Jugements de Valeur (*Anthropologica,* IV, Ottawa, 1957, 61-77). A scholarly study on the vexed question of cultural relativity as shown in comparisons of the cultures of different ethnic groups, and of value judgments in their appraisal; the subject is treated both historically and philosophically.

———Remarques sur les Concepts de Folk-Société et de Société Paysanne (*Anthropologica,* V, Ottawa, 1957, 147-62). A critical and spirited rebuttal of views expressed by Garigue on the type of society which has developed in Quebec.

Ritchie, William A. *Indian History of New York State, Part III—The Algonkian Tribes.* New York: New York State Museum and Science Service. [1956]. Pp. 24. Although this masterly outline of the culture of the Algonkian-speaking Indians at the time of European contact deals particularly with the tribes of eastern New York, southern New England, and Long Island, much of the data is relevant for southern Quebec and New Brunswick. The information, based on archæological evidence as well as on early writings, is presented logically in non-technical language. Although written for teachers and the proverbial intelligent layman, the well-balanced summary from varied sources makes the publication of value to anthropologists as well.

———Prehistoric Settlement Patterns in North-eastern North America (*Prehistoric Settlement Patterns in the New World,* Viking Fund Publications in Anthropology, XXIII, New York, 1956, 72-80). A scholarly exposition of the type of settlement characteristic of successive Indian cultures in northeastern America, as revealed by archæology.

———*Traces of Early Man in the Northeast.* (New York State Museum and Science Service, Bulletin No. 358.) Albany, N.Y.: University of the State of New York. June, 1957. Pp. 91. It is well established that hunters using heavy fluted points of the Clovis type occupied much of the western plains and what are now the southeastern states prior to 8000 B.C. Scattered tools of this type have been found widely in the northeast, predominantly in river valleys, but no camp-sites have been discovered. Many of the implements are made of stone from south of New York State, suggesting that these early hunters may have moved northwards up the river valleys, following the recession of the last ice-sheet.

Ritchie, William A., and special section by Frederick R. Matson. *Recent Discoveries Suggesting an Early Woodland Burial Cult in the Northeast.* (New York State Museum and Science Service, Circular 40.) Albany: University of the State of New York. 1955. Pp. 135, 29 pl. Excavations in the St. Lawrence valley in northern New York State throw light on burial customs during the early Point Peninsula period. Cremation and the spreading of powdered hematite over the remains was a characteristic practice. The distribution of this type of interment appears to extend from Ontario to Indiana.

Rooth, Anna Brigitta. The Creation Myths of the North American Indians (*Anthropos,* LII(3-4), 1957, 497-508). A detailed comparison of three hundred North American Indian origin myths shows that they can be divided into eight types, each localized in one or more areas. Seven of these types occur also in Eurasia, indicating a genetic relationship between the two continents in this type of folklore.

Rousseau, Jacques. De Menus Rites Païens de la Forêt Canadienne (*Les Cahiers des Dix,* XIX, 1954, 187-232). Refuting the assumption that the Indians of northern Quebec have abandoned their native beliefs, the author gives detailed descriptions of practices, based on his own observations or on contemporary writings. He includes drumming for religious purposes, feasting and rites associated with bears, sacred places, charms, blood-letting, conjuring, and beliefs of the hereafter. These aboriginal religious concepts are held by Indians who are, at the same time, Christians; the two religions are followed at different seasons of the year.

———L'Origine et l'Evolution du Mot Esquimau (*Les Cahiers des Dix* XX,, 1955, 179-98). By means of a scholarly literary analysis, the author proves that the word *Esquimau* is a French adaptation of a Montagnais Indian term meaning, "Eaters of Raw Flesh." Eskimo is the English, German, and Danish translation of the French word. The conclusions are reached on the basis of extensive study of seventeenth century references, combined with study of the phonetic changes involved in adaptation of words from Montagnais to French.

———L'Origine du Motif de la Double Courbe dans l'Art Algonkin (*Anthropologica,* II, Ottawa, 1956, 218-21). A plausible hypothesis of the origin of the double-curve motif among the northeastern Algonkian-speaking Indians lies in the prevalence of biaxial symmetry, a style concept probably stimulated by the use of designs made by the folding and biting of bark.

———Les Américanismes du Parler Canadien-français (*Les Cahiers des Dix,* XXI, 1956, 89-103). An interesting and scholarly essay on the incorporation into French, and particularly into French-Canadian usage, of words of Indian origin.

———L'Indien de la Forêt Boréale, Elément de la Formation Ecologique (*Studia Varia,* Royal Society of Canada, Literary and Scientific Papers, (ed., E. G. D. Murray) Toronto, University of Toronto Press, published for the Society, 1957, 37-51. In this description of aboriginal Indian life, primarily of the tribes of Quebec, the author shows how occupations, activities, and philosophy are affected by natural conditions. Man, like every other animal, is part of his environment; the Indian did not have the mechanical knowledge of the modern white man to control or to destroy it.

ROUSSELIÈRE, G.-M. Christmas Igloo (*The Beaver*, Outfit 287, winter, 1956, 4-5). A series of photographs with a brief description of a huge igloo, eighteen feet in height, and supported on four snowhouses, built by the Eskimo at Pelly Bay and used for the celebration of Christmas Mass.

ROY, ANTOINE. Les Indiennes de Châteaubriand (*Les Cahiers des Dix*, XIX, 1954, 99-109). Chateaubriand described a number of Indian women in graphic, and generally attractive, terms. In this scholarly essay the author shows that Chateaubriand's characterizations have the support of contemporary writings; Indian women appealed to the French of the sixteenth century, as is shown not only in their written descriptions, but by the number of intermatings, legal and otherwise.

ROY, CARMEN. *Littérature Orale en Gaspésie.* (National Museum of Canada, Bulletin 134, Anthropological Series 36.) Ottawa: Department of Northern Affairs and National Resources. 1955. Pp. vi, 389. This comprehensive study of the folklore of the Gaspé area includes such categories as place-names, medical beliefs, charms, tales of the supernatural, games, sayings, and songs. The material has been analysed and the occurrence of themes recorded according to international folklore usage. Of particular interest to anthropologists is a discussion of Micmac influence.

———La Pêche en Gaspésie (National Museum of Canada, Bulletin 142, *Annual Report for the Fiscal Year 1954-55*, Ottawa, 1956, 121-6). A study of fishing methods and practices in Gaspé shows the survival of archaic techniques and terminology.

RUSSELL, CHARLES. The Pied Piper of Angoon—A Problem in Community Relocation (*The American Indian*, VII(4), winter 1956, 27-32). The Tlingit village of Angoon in the Alaska Panhandle was probably adequate for its inhabitants in the days of a fishing and hunting culture. But it is no longer economically satisfactory with changed ways of life and transportation, a fact particularly plain to the young Indians who have been away at school or college. Expansion on the old site on a narrow neck of land is impossible; the problem of moving to a new location is a formidable community undertaking which is being considered sadly but seriously.

SAGE, W. N. New Caledonia: Siberia of the Fur Trade (*The Beaver*, Outfit 287, summer, 1956, 24-9). In this popular description of the early history of the northern interior of British Columbia are included a few observations on the life of the Indians of the area.

SANFORD, JOHN T. Geologic Observations at the Sheguiandah Site (*Canadian Field-Naturalist*, LXXI(3), July-Sept., 1957, 138-48). Since the question of the dating of the Sheguiandah site is a problem of geology, this report by a competent geologist is an important contribution to the understanding of one of the oldest and most important archæological sites in Canada. His findings substantiate the views expressed by THOMAS E. LEE.

SAUER, CARL O. The End of the Ice Age and Its Witnesses (*Geographical Review*, XLVII(1), Jan., 1957, 29-43). A comprehensive and valuable summary of population movements during the advance of the last ice-sheet, with special reference to the coming of man to America.

SCHAEFER, JACK. The American Indian (*Holiday*, XIX(2), Feb., 1956, 26-39; 112; 115; 117; 119). A popular description of the Plains Indians, illustrated with superb photographs by ARNOLD NEWMAN.

SCHULENBERG, RAYMOND F. Indians of North Dakota (*North Dakota History*, XXIII(3-4), July-Oct., 1956, 119-230). Written to provide an authoritative but non-technical description of the Indians of North Dakota, this article deals with the history of each of the tribes, together with a broad treatment of their culture. Since most of the groups under consideration lived on both sides of the International Border, this summary is as pertinent for Canada as for the United States. The final chapter describes the status and life of the modern Indians of North Dakota, with a useful bibliography.

SHAFER, ROBERT. Note on Athapaskan and Sino-Tibetan (*International Journal of American Linguistics*, XXIII(2), April, 1957, 116-7). A highly technical paper on resemblances between Sino-Tibetan and Athapaskan roots.

SHAVE, HARRY. John West, Peguis and P. Rindisbacher. (*The Beaver,* Outfit 288, summer, 1957, 14-19). The recently discovered journal of John West, describing his travels between the Red River and Hudson Bay between 1820 and 1823, provided some interesting facts not included in the version published in 1824. With the manuscript there came to light five water-colours of Indians, the work of Peter Rindisbacher.

SHEA, AMBROSE. Rangers of Frobisher (*The Beaver,* Outfit 287, winter, 1956, 42-3). Extracts from a diary describe the amusing incident of training a group of Eskimo to form a guard of honour.

SHIPLEY, NAN. The Hidden Harvest (*Canadian Geographical Journal,* LII(4), April, 1956, 178-81). A popular description of the collection and sale of seneca root (*Polygala senega*) for medicinal purposes by the Indians of Manitoba.

SIEGEL, BERNARD J., ed. *Acculturation: Critical Abstracts; North America* (Stanford Anthropological Series, No. 2.) Stanford, California: Stanford University Press, 1955. Pp. xiv, 231. As part of a comprehensive study at Stanford University, a digest has been made of over ninety books and comprehensive articles on culture contact in North America. The facts have been arranged in specific categories, with a view to comparison, and to provide basic data for an analysis of the processes of culture change.

SMITH, MARIAN W. The Cultural Development of the Northwest Coast (*Southwestern Journal of Anthropology,* XII(3), autumn, 1956, 272-94). Based on extensive and scholarly analysis of ethnological and archæological literature, the author gives a lucid exposition of the sequence of cultural growth on the Northwest Coast. Supplementing the widely held hypothesis of cultural diffusion from the interior, she postulates an important culture area in the foothills of the Columbia-Fraser region, a supposition which would account for the peculiarities of Bella Coola culture, as well as for the stone sculpture which spread down to the lower coast.

———Stone Sculpture from Southern British Columbia (*Man,* LVI, March, 1956, 33). Illustrations and descriptions are given of five hitherto unpublished stone figures from Vancouver Island and the Fraser valley. The cultural relationship of this type of sculpture is unknown, and consequently all examples are important.

SMITH, NICHOLAS N. Notes on the Malecite of Woodstock, New Brunswick (*Anthropologica, V,* Ottawa, 1957, 1-39). A series of interesting reminiscences from a Malecite Indian, including data on hunting methods, way of life, social customs, and folklore.

———Smoking Habits of the Wabanaki (*Bulletin of the Massachusetts Archæological Society,* XVIII(4), July, 1957, 76-7). A note on the smoking mixtures used by the Abnaki (Wabanaki) of the southern New Brunswick–Maine border; the most common material today is the bark of the red willow.

SNYDERMAN, GEORGE S. Halliday Jackson's Journal of a Visit Paid to the Indians of New York (1806) (*Proceedings of the American Philosophical Society,* CI(6), Dec. 19, 1957, 565-88). This journal, here published for the first time, gives a vivid description of the life of the Seneca Indians in western New York State in 1806, as recorded by a member of a Quaker party sent to visit the Indians as well as the Quaker settlements in the area.

SPAULDING, ALBERT C. Prehistoric Cultural Development in the Eastern United States (*New Interpretations of Aboriginal American Culture History,* Anthropological Society of Washington, 75th Anniversary Volume, 1955, 12-27). This article gives a very scholarly description and analysis of the sequence of prehistoric cultures in eastern North America as revealed by modern archæological research.

SPENCER, ROBERT F. *An Ethno-Atlas.* Dubuque, Iowa: Wm. C. Brown Company, 1956. Pp. 42. The scope of this book is indicated by its title; its purpose, which is well fulfilled, is to provide a teaching aid for elementary courses. Outline maps show culture areas, tribal groups, linguistic and racial divisions of mankind, with a finding list of geographical place names that are commonly used in anthropological literature.

Steenhoven, G. van den. *Study of Legal Concepts Among the Eskimos in Some Parts of the Keewatin District, N.W.T.: Report to the Department of Northern Affairs and National Resources;* Attachment I, *Full Comparative Account of Interviews Held at Eskimo Point, N.W.T.;* Attachment II, *The New Danish Criminal Code for Greenland;* Attachment III, *Reproductions of Photos Taken at Eskimo Point and Ennadai Lake;* Supplement, *Diary Extracts.* The Hague. 1956. Pp. 74; 22; 15; 47 (pls.); 40. The subjects of this interesting report on the Caribou Eskimo include ownership of property, "tribal" boundaries, powers of headmen, inheritance, sharing, and theft, all of them matters on which there are rules of behaviour which may be regarded as "law". Although the period of field-work was short, and many difficulties were encountered, the result is a significant contribution in the field of the Eskimo legal code. Relevant comparative data for other areas are included. Supplementary material includes records of all interviews, extracts from the author's diary, a set of beautiful photographs, a summary of the criminal code of Greenland and a collection of songs and music by Z. Estreicher. Apart from his scientific findings, the author's anecdotes provide a fascinating picture of present-day anthropological work in the Arctic.

Supplementary Materials on Location, Numbers, and Socio-economic Conditions of Indians and Eskimos (*A Survey of the Aboriginal Populations of Quebec and Labrador,* ed., Jacob Fried, Eastern Canadian Anthropological Series, I. McGill University, Montreal, autumn, 1955, 101-16). The central feature of this article is a map showing the present-day location of Indian bands and reserves. This is supplemented by an alphabetically arranged list, giving population, linguistic affiliation, and basic economics of each group.

Suttles, Wayne. *Katzie Ethnographic Notes.* (Anthropology in British Columbia, Memoir 2.) Victoria, B.C.: British Columbia Provincial Museum. 1955. Pp. 31. Field-work among the Katzie, a small Coast Salish "tribe" of the Lower Fraser, was undertaken primarily to supplement the native terms recorded by Jenness in 1936, and published in a companion study in this series (cited as, *Jenness, D. The Faith of a Coast Salish Indian*). However, a considerable amount of additional information was collected on geographical knowledge, economics, and kinship terminology.

———The "Middle Fraser" and "Foothill" Cultures: A Criticism (*Southwestern Journal of Anthropology,* XIII(2), summer, 1957, 156-83). A scholarly and critical analysis of both the methodology and the conclusions reached by Marian W. Smith in her reconstruction of culture history in the Fraser Valley on the basis of archæological and ethnological data. The author stresses the need for more factual material before final conclusions can be drawn.

———The Plateau Prophet Dance among the Coast Salish (Southwestern Journal of Anthropology. XIII(4), winter, 1957. 352-96). A ritual having wide distribution among the Coast Salish is some form of a Prophet Dance, embodying the concepts of a Messianic message. The author believes this to be related to similar cults among Indians of the Plateau, but that its distribution as well as its form was dictated by Coast Salish attitudes and culture, with indirect white influence on aboriginal traits. Suttles gives a logical exposition of a complicated thesis, leading to an hypothesis of the history of the integration of this element into Coast Salish life.

Swanson, Earl H. Nootka and the California Gray Whale (*Pacific Northwest Quarterly,* XLVII(2), April, 1956, 52-6). The practice of whaling on the north-west coast was limited to the Quileute, Quinault, Makah, and Nootka; it was not found among the Haida and other northern tribes, in spite of their sea-faring proficiency. The answer may lie in the fact that the migrating gray whale veers away from the coast as it travels north of Vancouver Island.

Tanner, John. *A Narrative of the Captivity and Adventures of John Tanner.* Minneapolis: Ross and Haines. 1956. Pp. xxvi, 427. A new edition, with an introduction by Noel M. Loomis, of Tanner's description of his captivity among the Ojibwa and Ottawa Indians. It was first published in 1830.

Taylor, Andrew. Our Polar Islands—The Queen Elizabeths (*Canadian Geographical Journal,* LII(6), June, 1956, 232-51). This geographical description of the Queen Elizabeth Islands contains a few observations on archæological remains.

Taylor, Herbert C., Jr. Notes on an Archæological Survey of Eastern Vancouver Island (*Research Studies of the State College of Washington,* XXIV(1), 1956, 53-5). This preliminary report gives the location of forty-one archæological sites of appreciable size on the east coast of Vancouver Island between Englishman River and Salmon River, with thirteen more on south Quadra Island.

Taylor, Herbert C., Jr., and Wilson Duff. A Post-contact southward Movement of the Kwakiutl (*Research Studies of the State College of Washington,* XXIV(1), 1956, 56-66). By a combination of ethnological and archæological evidence, reinforced by historical references, the authors conclude that there was a significant southerly movement of the Kwakiutl on Vancouver Island in the nineteenth century.

Teal, John J., Jr. Aboriginal Populations (*Geography of the Northlands,* American Geographical Society, Special publication XXXII, 1955, 139-62). This compilation on a wide variety of aspects of the Arctic contains a chapter on the aboriginal populations of Eurasia and America, with some broad generalizations on circumpolar culture traits. The sections on the Eskimo and the northern Indians are descriptive, but not detailed.

Teit, J. A. Field Notes on the Tahltan and Kaska Indians: 1912-15 (*Anthropologica,* III, Ottawa, 1956, 39-171, 52 illus.). Teit worked among the Athapaskan-speaking Tahltan and Kaska in 1912 and 1915. The information was to have been written up in an ethnological monograph, but this was never done. A considerable portion had been completed, however, and this is now published for the first time. The subjects treated include: (a) Tribal divisions, (b) Clothing and ornament, (c) Travel and trade, (d) Birth, childhood, puberty, and death, (e)Incidental shorter notes on various aspects of life. The finished sections are excellent, with a wealth of detail on clothing and on puberty rites of girls and boys. Balikci has added to the value of the paper by well-selected and pertinent illustrations, and June MacNeish has done a thoroughly commendable editorial task, by her praiseworthy insistence on retaining Teit's writings in their original form. This is a very important paper, bringing to light data from a little known area and from a period long since past.

Thomas, Edward H. Tionnontates (Petun or Tobacco Indian) Tools, Collingwood Area, Ontario, Canada (*Pennsylvania Archæologist,* XXVI(1), June, 1956, 43-7). A brief note, with sketches, of the variety of tools found in the vicinity of Collingwood, Ontario, probably made by the Petun.

Thorsteinsson, R., and E. T. Tozer. Geological Investigations in Ellesmere and Axel Heiberg Islands, 1956 (*Arctic,* X(1), 1957, 3-31). This report of geological work contains a few items of information on Eskimo remains on Ellesmere Island.

Tsuchiyama, Tamie. A Comparison of the Folklore of the Northern, Southern, and Pacific Athapaskans: A study in Stability of Folklore within a Linguistic Stock (*Kroeber Anthropological Society Papers,* XIV, spring, 1956, 100-1). An abstract of a Ph.D. thesis, of which one important conclusion is that the resemblances between the folklore of the three main branches of the Athapaskan-speaking peoples are less than the resemblances of each to neighbouring non-Athapaskan peoples.

Tucker, Glenn. *Tecumseh: Vision of Glory.* Indianapolis: Bobbs-Merrill Company, Inc. [Toronto: McClelland & Stewart Ltd.] 1956. Pp. 399. This is a vivid description of Tecumseh's early life and of Indian movements prior to the War of 1812.

Uren, P. E. Greenland (*Geography of the Northlands,* American Geographical Society, Special publication XXXII, 1955, 372-86). This geographical description of Greenland contains a general description, with illustrations, of the Eskimo.

Vaillancourt, Louis-Philippe. L'Origine des Caractères Syllabiques (*Anthropologica,* V, Ottawa, 1957, 125-9). A brief description of the work of the Rev. James Evans who, as a missionary at Norway House, invented the system of recording the Cree language in syllabic script.

Van de Velde, Frans. Les Règles du Partage des Phoques pris par la Chasse aux Aglus (*Anthropologica*, III, Ottawa, 1956, 5-14). The Eskimo of Pelly Bay follow strict rules in the method of cutting up seals and the distribution of the flesh. Each part of the carcass, as well as portions of blubber, have definite names, and these pieces are distributed to different individuals in accordance with precise social obligations between the recipient and the harpooner.

VanStone, James W. An Archæological Reconnaissance of Nunivak Island, Alaska (*Anthropological Papers of the University of Alaska*, V(2), May, 1957, 97-118). Preliminary archæological work on Nunivak Island failed to reveal sites of great antiquity; the material recovered confirms ethnological and historical conclusions that the Nunivak islanders had close cultural connections with Eskimo on the adjacent coast of Alaska.

Vinay, Jean Paul. Les Manuscrits Amerindiens de Québec (in *A Survey of the Aboriginal Populations of Quebec and Labrador*, ed., Jacob Fried, Eastern Canadian Anthropological Series, I, McGill University, Montreal, autumn, 1955, 74-84). A thoughtful commentary on the manuscript material on the Indian languages of Quebec preserved in various archives in the province.

———Reflexions sur la Cueillette de Documents Ethno-Linguistiques (*Anthropologica*, V, Ottawa, 1957, 131-46). A keen analysis of the difficulties of recording a native language, illustrated with examples of the use of phonetic symbols in transcribing Naskapi.

Wachtmeister, Arvid. Naming and Reincarnation Among the Eskimos (*Ethnos*, XXI(1-2), Stockholm, 1956, 130-42). The widespread Eskimo practice of naming a new-born child after a recently deceased relative may be connected with a belief in reincarnation, a belief which was perhaps more commonly held in former times than at present.

Wallace, Anthony F. C. New Religions Among the Delaware Indians, 1600-1900 (*Southwestern Journal of Anthropology*, XII(1), spring, 1956, 1-21). Although the Delaware Indians who moved to Ontario about 1800 are not included in this scholarly historical study, this analysis of the new religious movements adopted by members of the tribe for three hundred years or more is significant for Canadian anthropologists.

———Origins of Iroquois Neutrality: The Grand Settlement of 1701 (*Pennsylvania History*, XXIV(3), July, 1957, 223-35). After many years of warfare, the Iroquois made peace in 1701 both with the French at Montreal and the English at Albany. This gave them a strong position in which their support was sought by both sides; in fact they had the strategic advantage of holding the balance of power for the next seventy years between the two European powers.

———Political Organization and Land Tenure Among the Northeastern Indians, 1600-1830 (*Southwestern Journal of Anthropology*, XIII(4), Winter, 1957, 301-21). This paper is based on a thorough study of historical sources concerning the political structure of the agricultural Indians of the northeast, primarily of those living south of the Great Lakes, but with many comments on groups to the north. Wallace concludes that their political structure was based on a true tribal concept, involving ownership of clearly defined tribal territory.

Wallace, Paul A. W. The Iroquois: A Brief Outline of their History (*Pennsylvania History*, XXIII(1), Jan., 1956, 15-28). As an introduction to *The Livingstone Indian Records*, edited by Lawrence H. Leder, q.v., Wallace gives a valuable summary of Iroquois history throughout the Colonial period.

Wallis, Wilson D., and Ruth Sawtell Wallis. *The Malecite Indians of New Brunswick*. (National Museum of Canada, Anthropological Series, XL, Bulletin CXLVIII.) Ottawa: National Museum of Canada. 1957. Pp. 54. The Malecite of New Brunswick are probably the least known of the eastern Algonkian-speaking people of Canada. The authors have written a summary of their life as it must have been in contact times, and of elements surviving to the present, based on a thorough study of published material supplemented by a brief field investigation. Malecite culture seems to have been almost identical with that of the Passamaquoddy and the Penobscot of Maine.

Warrick, W. Sheridan. The American Indian Policy in the Upper Old Northwest following the War of 1812 (*Ethnohistory*, III(2), spring, 1956, 109-25). A historical study of the policies and practices of the fur traders, American, British, and Canadian, toward the Indians of the Lake Huron and Lake Superior area between 1815 and 1825.

Wedel, Waldo R. Changing Settlement Patterns in the Great Plains (*Prehistoric Settlement Patterns in the New World,* Viking Fund Publications in Anthropology, XXIII, New York, 1956, 81-92). The author gives a scholarly summary of successive patterns of settlement on the Plains, as revealed by archæology. The importance of environment is clearly apparent, and data are given on village communities as well as on areas of a predominantly hunting economy.

Wentworth, Edward N. Dried Meat—Early Man's Travel Ration (*Annual Report of the Smithsonian Institution for the Year Ended June 30, 1956,* Washington, United States Government Printing Office, 1957, 557-71). Some type of dehydrated meat was used by almost all tribes of North and South America. On the Plains, bison meat was cut into thin slices, thoroughly dried, and then pounded before being placed in bags for storage. North of the Plains, caribou meat was prepared in a "half-dry" form, an entirely different technique.

Wettlaufer, Boyd N. *The Mortlach Site in the Besant Valley of Central Saskatchewan.* (Anthropological Series I.) Regina: Department of Natural Resources. 1955. Pp. 113. An archæological investigation near Mortlach, Saskatchewan, revealed a stratified site of some seven horizons. The specimens recovered are described, and comparisons made with comparable cultures in the United States. Harold C. Moss has contributed a chapter on soil analysis of the different levels.

Wike, Joyce. More Puzzles on the Northwest Coast (*American Anthropologist,* LIX(2), April, 1957, 301-17). Modern field work, combined with syntheses and critical comparative studies of the Northwest Coast, has brought into the open doubts concerning the accuracy of some of the earlier field reports. This is illustrated with an analysis of the difficulties of understanding the composition of Tlingit and Haida villages on the basis of Swanton's work, and some consideration of the Kwakiutl potlatch as described by Boas.

Williams, Mentor L., ed. *Schoolcraft's Indian Legends.* East Lansing: Michigan State University Press. 1956. Pp. xxii, 322. Schoolcraft's original writings have long since become collectors' items, and scholars will welcome this volume containing most (if not all) of the Ojibwa myths which he published between 1839 and 1856, together with other relevant material.

Williamson, Robert G. Slave Indian Legends (*Anthropologica,* II, Ottawa, 1956, 61-92). This collection of Slave tales, translated freely into English, adds appreciably to our knowledge of northern Athapaskan mythology, and also illustrates the blending of modern elements into the traditional pattern of native folklore.

Wilson, Clifford. *Pageant of the North.* Toronto: Ryerson Press. 1957. Pp. 175. As the title suggests, this attractive volume depicts in a series of superb photographs, the life of the north. It includes scenery, plants and animals, and human beings of all kinds, including Eskimo and northern Indians. As the old way of life disappears, such pictorial records are of lasting value, and their scientific importance is enhanced by artistic beauty.

Wittry, Warren L., and Robert E. Ritzenthaler. The Old Copper Complex: An Archaic Manifestation in Wisconsin (*American Antiquity,* XXI(3), Jan., 1956, 244-54). Based in part on the results of the excavations of two important sites in Wisconsin, and in part on a comprehensive analysis of the literature, the authors propound an hypothesis of the place of the Old Copper Complex in the prehistoric sequence of the Northeast.

Wood, W. Raymond. Perforated Elk Teeth: a Functional and Historical Analysis (*American Antiquity,* XXII(4), April, 1957, 381-7). Perforated elk teeth, usually the canines, occur in archæological sites on the Northern Plains, especially in those associated with the historic Mandan. As pendants on costumes they were commonly described in records of the nineteenth century.

Wormington, H. M. *Ancient Man in North America,* Fourth edition, fully revised. (Denver Museum of Natural History, Popular Series, IV.) Denver: Denver Museum of Natural History, 1957. Pp. xix, 322. This compilation on early man and his culture in North America has been so extensively enlarged that it is virtually a new book. Scholarly and authoritative, yet written in lucid style, it is a valuable general summary of material that is widely scattered in scientific journals.

Wright, J. V. Comments on the Bruce (*Ontario History,* XLVIII(4), Autumn, 1956, 193-4). An archæological reconnaissance in the Bruce Peninsula, Ontario, led to the discovery of sites of three distinct cultures, the Laurentian, Point Peninsula, and early Iroquois. This preliminary statement indicates the importance of the area and the satisfactory beginning of significant work.

Yawata, Ichiro. The affinity of Japanese and North American Prehistoric Pottery (*Anais do XXXI Congresso Internacional de Americanistas, São Paulo, 1954,* São Paulo, 1955, II, 867-9). A brief note on the similarities between the earliest Jomon style pottery from Japan and North American types, a resemblance presumably attributable to common origin.